Mac IIfx: Power where Mac needs it

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HOT

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68030 Processor

Connecting to a bulletin board

Video boards / Frame grabbers examined

REVIEWS
- White Knight
- MicroPhone II
- JMP
- Dreams
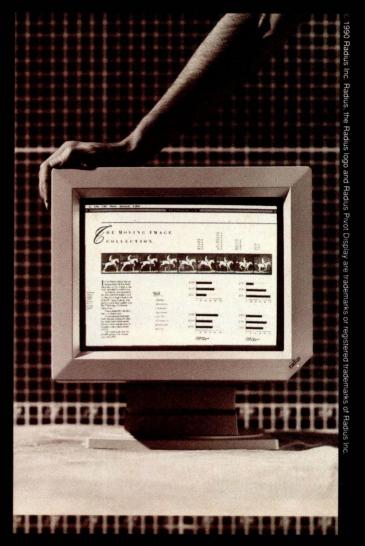- Sum II
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Contents

Australian
MACWORLD
April 1990
Vol 6, No 3
The Macintosh™ Magazine

Cover photography by Graeme Gillies

A peripheral matter

"Tell me," said my psychiatrist, "have you eaten today?"

"Uh – no, I wasn't hungry"

"That won't do – your wife has told me a few things. You believe that if you keep your weight down, you can prevent the continent from sinking. The greenhouse effect – right? Yesterday, your publisher asked me what to do; you had refused a week at the Macworld Expo in San Francisco, frightened that under the weight of Mac Portables, California might fracture. And that's not all. I have to break it to you: you are obsessive."

"That's why I came to see you," I confessed. "I have this other preoccupation with Mac costs, and I had promised mum to forget it for at least six months. Greenhouse is more important. Why, have you never worried about flushing the toilet? What do you think that's going to do, with the water levels already rising? Then Apple released the Macintosh IIfx, and I was hooked again."

"Take these." He was handing me a bag of valium.

"There's probably calories in those," I thought, but said nothing.

Aloud: "As soon as another high-end Mac was sighted, everyone started squawking 'where's the low-end Mac,' and I spent all weekend bent over spreadsheets again, trying to find out what they were talking about. I don't want to harp on prices, I really don't. But I cannot sleep."

"Try it on me," he sighed. "Maybe you'll feel better afterwards."

"I want cheap Macs like I want cheap socks," I said. "Who doesn't? But I could not figure out who needs a mythical 'low-end' Mac. Now I believe

I know. It's for big business. Computing is expensive for the single user, and the cost of the computer is not the main concern. Have you ever costed a complete set-up?"

"Uh – no." He did not look as if he'd want to.

"I did. I even costed four different set-ups."

"You would," he nodded.

"First, a basic system for word processing and spreadsheets. Then, a 'specialist' configuration to handle for instance financial, statistical or scientific jobs. Third, a midrange desktop publishing combination, and finally, a quite sophisticated graphics, presentations, and publishing system with a high 'drool' factor."

My psychiatrist was not the drooling type, I gathered. He was half asleep, possibly dreaming of his hobby: collecting garters from the Victorian period.
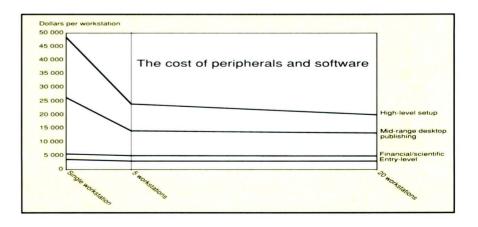
"The more sophisticated the system, the less does the cost of the Mac matter. The reason, of course, is that the peripherals and software come

to cost more than the Mac. What people overlook is that when more users combine, say in a work group of five, the proportional cost of the Mac begins to rise again! And that happens because some peripherals may be shared by several users, and they need not all have the full compliment of software either."
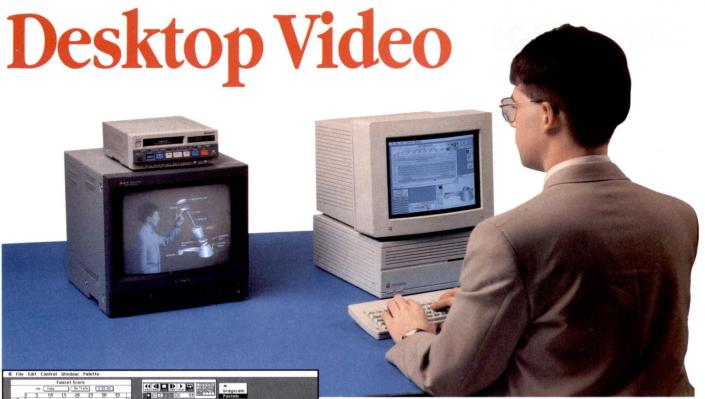
"Very interesting." It oozed out, more of a snore than a human uttering.

"For a single user, my entry level system would cost $6,170, the 'scientific' combination $13,305, the midrange desktop publishing system $36,395, and the fancy publishing system $65,240 – are you all right?"

It was hard to tell. His eyes were wide open, his complexion pale, and I could tell he was counting how many Victorian garters he could get for $65,000.

"The irony is, the Mac makes up 45% of the cost of the entry level system, 60% of the scientific system, 29% of the midrange DTP system, and only 26% of the top publishing system. That happens despite using a Mac Plus

The cost of peripherals and software

for the entry level and Apple's dearest, the Mac IIfx, for the top system. In a sense, therefore, the cost of the Mac matters less in the costly systems where the most expensive Macs fit in.

But I don't know many enthusiasts who would spend $65,000 on a system for themselves. Chances are that they would gang up in a group. If they were five together running a bureau, for example, the top-end system would cost no more per workstation than the midrange DTP system costs a single user. I am sure you would have foreseen that – economies of scale and all that."

My psychiatrist nodded unconvincingly, as if to say "Tell me more about your mother."

"If all systems behaved that way, it would be easy. But they don't. You, see, the entry level system shows almost no economy of scale. It has virtually no peripherals or software that can be shared. Therefore, if a company needs twenty basic Macintosh workstations, each additional station costs almost the same as the first; the cost curve is quite flat. To these buyers, the cost of the Macintosh itself is critical – and they are by definition interested in the low-end Mac.

"By the same token, the groups of five or more who put together expensive DTP systems also become increasingly interested in the cost of the Mac, in this case the high-end Macs, the more workstations they set up. While the Mac itself constituted only 26% of the cost for a single top-end system, it rises to represent 46% of the cost by the time you are up to the twentieth workstation. What does that tell you?"

It obviously told him nothing. He was fast asleep.

"It told me that as a general rule, the cost of the Mac CPU is close to one half the total cost of your computing investment regardless of the sophistication of your setup, as long as you have five workstations or more. For the single entry-level user it is also roughly half of the full cost. Only for a few groups which have fewer than five Macs in a very sophisticated setup does the peripherals and software cost become the biggest ticket item.

In the 'low-end Mac' debate, I get lost. The low-end system I've put together includes a Macintosh Plus at

$2,795 recommended retail inc. tax. The persistent rumour is that Apple wishes to release a $US1,000 Macintosh, perhaps within this year. That would certainly translate to an Australian price somewhat above $1,500. The single entry-level user could save the difference ($2,795 - $1,500) = $1,295 on a system. That would bring his system cost down from $6,170 to $4,875, or some 20%. While that's great, I still cannot see what the fuss is about. Would a twenty percent difference prevent you from buying a personal computer system?"

He shook his head politely. He'd heard the question mark, but not the question.

"The moment you move off the entry level, the cost of peripherals and software escalates very steeply. Try going from the ImageWriter to the LaserWriter, for example. I think the individuals who cry out for a low-cost Mac are staring at a whole gamut of expensive items.

Corporate users, on the other hand, look at CPUs being half their computing investment across the board. Since they are bound to have more low than high-end stations, they would be the first to cheer a low-cost Mac."

"So, you do acknowledge the need for a low cost Mac, then," he said in a rare show of insight.

"Sure. What I could not fathom, was how that could automatically give us 'computing for the rest of us'. To me, Apple's problem is not the price of its low-end Mac, but its lack of power and its sheer age. The polar caps have melted since it was released. We also need a better low-end printer. There is a myth perpetuated that Apple should build a 'cheap' computer for the entry level, when that is not at all what happens in computing generally.

What ought to have happened is that the Plus which came out in 1985 should have been phased out, the SE of 1987 migrated down, and the current SE/30 brought in at the old SE price. The name of the game is migrating good technology down while better performers are added. Apple has added at the top, but has been slow to concede at the bottom. From what I hear, it costs them no more to manufacture the SE than the Plus – it is a marketing ploy.

The result is a widening technology

gap between Apple's newest and its low-cost models, and the user community gradually falls further behind at the entry level. Today, the span of current products ranges from a 1985 Mac (Plus) to a 1990 Mac (IIfx), whereas in the interim very good computers (from 1987, the Mac II and Mac IIx) have been discontinued because Apple could not squeeze them into its pricing scheme. You know, I'd rather buy a second-hand Mac II than a new SE.

In February, several prices were lowered, but I don't know if you noticed that even after the reduction an SE costs only 20% less than it did when first introduced. That simply is not a fair reflection of the technology revolution we've had in three years. Not that I want lower prices – I want better technology at the low end! But I almost forgot what I started out with: for me, the Mac IIfx is necessary; those of us who must cost the human operator at $40,000 a year cannot afford a slow Mac, however small the price tag."

"Do you feel better now?" my psychiatrist interjected, checking his appointment book.

I couldn't reply. I was holding my breath to stop a burp from entering the ozone layer..

In case you wish to see for yourself what products I put together to make up the four different systems see "The compleat Mac" on page 17. **MAC**

Contributors

Bill Bristow is the creative director of Knowles Bristow advertising. The agency has a Mac network.

Rob Hall lectures at the University of New South Wales and consults on data analysis.

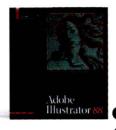**Andy Dent** is an independent Macintosh consultant based in Perth.

Mark Nichols is a Macintosh consultant and designer.

John Stachlewski is a CAD consultant based in Melbourne.

Roy Lind has left his normal occupation as a Viking to join the Macworld staff.
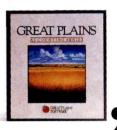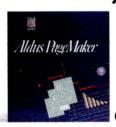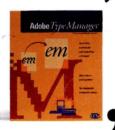
Greed works?

It so happens that this April marks my fortieth year as a citizen of planet earth. I realise that this sort of decade-marking is no big deal to, say, elephants or tortoises, who can live to be 150 years old. But we of naturally shorter lifespans tend to regard this anniversary with some seriousness. It is a time for reflection, for assessment, for listening to the wellsprings of your life in the hope that you won't hear suspicious creaking, erratic whirring, or other noises that indicate the machinery needs attention.

It's rather like standing at the Continental Divide of your life. With the sun high overhead, you're able to look both east and west with some sense, at last, of understanding. "Over the hill and still running hard," as a friend's coffee mug declares. It is a time to put away, however wistfully, the things of childhood.

So I am not going to do an "April Fool" column this year. For me this has been a fond tradition, and it pains me to give up something that has been such a pleasant recreation in my youth, but there it is. I shall resist the temptation to stir, to tell false things plausibly. Or true things doubtfully. I forget.

Had I still been prone to such seasonal follies, this year I might have gently wound up Apple Computer by suggesting - this is just an *example*, mind you - that some unauthorised third parties may soon be attempting to get into the reseller game by importing Macs from overstocked Apple dealers overseas, slitting open the sealed boxes to peek inside and satisfy themselves that these are, indeed, "used" machines, and offer them for sale as second-hand. Possibly through mail order. *Caveat emptor.* And I might have added plausibility by suggesting that the price point here for Macs is still high enough to leave a fair profit margin to these dastardly cads. But, as I said, this year I am leaving aside such fancies.

Of course, having stroked Apple's fur the wrong way, I wouldn't have been able to leave the resellers alone. To stir that camp - had I been so inclined this year - I might have woven a tale around Digital Equipment Corporation sales executives who may soon have the full range of Macintoshes added to their stock lists. This would enable them to offer "a full range of solutions" to DEC's multivendor clients, without aid from "alien" (non-DEC) vendors. Network training included.

To affectionately pull the legs of some major third party distributors, I might have found some way to hint darkly about monthly sales figures from several US mail order firms that would suggest more than 35% of estimated Australian software purchases are made overseas, and not sourced locally. Not all titles, of course, but certainly including some big name products. Fiendish trend!

Nor could I have forgotten the beleaguered consumer. I might have been tempted to concoct a scenario in which distributors - faced with the continued flagrant violation of copyright law by companies that still use unlicensed copies of software in their businesses - are reluctantly forced to take the distasteful, perhaps unholy, step of prosecuting some of their own customers for software piracy.

I'd have had to flesh out this vision with scenes at various law firms as they gathered evidence, and pirate-busters going door to door in the business districts of all metropolitan centres and bailing up MDs and MIS directors with threats of public damnation. Then would follow brutal images of the bloodbath of scandal, of once-promising careers - if not actual heads - on pikes outside various corporate headquarters as a warning to would-be miscreants. Chilling, no?

Well, forget all that. I have foresworn April foolery. This year I will be serious, although I had in mind to discuss foolishness of a different sort. I had the chance to meet with John Sculley in February; and ever since then I have had the phrase "Greed works!" rolling around in my haunted imagination.

Pardon me, that didn't come out right. Let me explain. I certainly wouldn't want to imply that John Sculley is either foolish or greedy, far from it. No, I mean that I had a chance to briefly discuss with him a subject which affects all free market economies, a problem that needs to be redressed soon, and this problem seemed to me epitomised in the "Greed works" speech of Gordon Gekko, the rapacious trader in the film *Wall Street*.

If you've seen it, you may recall Michael Douglas, as Gekko, charming a crowded room of disgruntled stockholders with the idea that capitalism works because it constructively harnesses the engine of self-interest, harnesses it in a way that can multiply and share wealth among many. "Greed is good," he intones, "Greed works, greed is right. Greed in all its forms, greed for life, money, love, knowledge, has marked the upward surge of mankind!" Standing ovation, the shareholders vote his way.

As an institution, Wall Street was established to capitalise business, underwrite new enterprises, build companies, and so build a nation. The trouble is, Wall Street is now the tail wagging the dog of industry - not just Apple, of course, but of business generally. Based on the results of the almighty quarter (or less), it influences directors to make short-sighted decisions for immediate results rather than pursue visionary strategies that might better ensure a company's long-term success.

Sculley is such a visionary. He has a reputation for being as guarded as a

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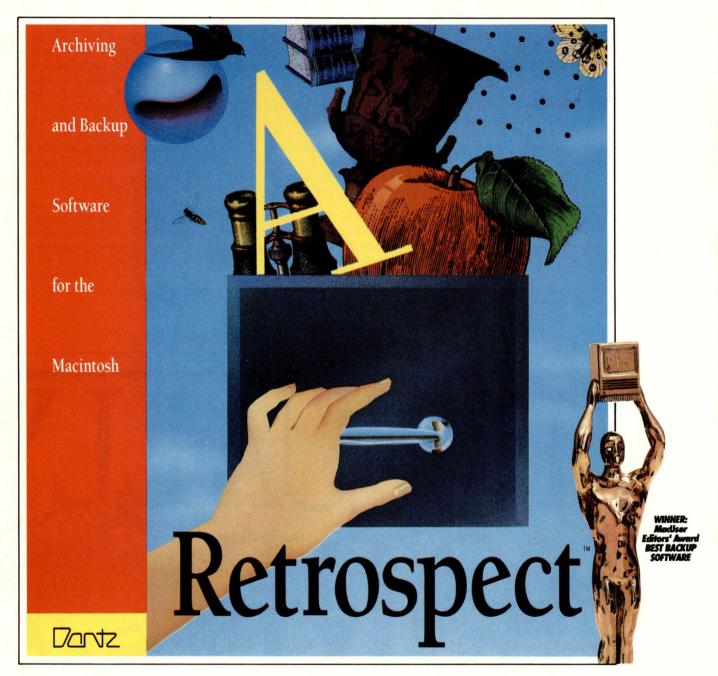
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diplomat in his public utterances; but my impression was that he is simply waiting for an interesting question of global proportions to be thrown his way. A current concern of mine is that US companies which supply high-tech innovations are slave to the myopic demands of Wall Street, and therefore seem at some disadvantage compared with the planned economies of Japan Inc, or the European community. I happened to mention this concern, and Sculley lifted off like a rocket.

It's all very well to be a visionary, but Wall Street can still jerk hard on the seer's chain. Sculley expressed dismay at brokers who measure the worth of companies only by their price per share and "who have about ten minutes' time for Apple Computer". As a publicly held company, Apple was obliged to report softer sales than originally projected for the first *two weeks* of December only. With that announcement, Wall Street shifted $US1.6 billion dollars of working capital out of Apple and into some

other hot prospects promising immediate returns.

Living in the lowly world of seven figures, I find it hard to imagine numbers like $1.6 billion washing out like the tide on the strength of a fortnight's performance. Now you see it, now you don't. What a planning nightmare. For a moment, I *almost* felt a twinge of sympathy about the high price of Macs, in part to guarantee a large pool of R & D funds for future product development regardless of the potent whims of brokers.

The epidemic of measuring everything in terms of quarterly profit-per-share is reaching crisis proportions, according to Sculley; on the plus side, he believes that "Americans respond well to a crisis", and that they will rise to meet the challenge. They just have to recognise it first; and so do we in Australia, for the same strings of a global economy are attached to us.

Wall Street in its current incarnation is essentially a 20th century phenomenon; it has its strengths, but it

should be modified to meet the needs of the 21st century, to refocus on long-range investment instead of short-term speculation. But how do you change an institution's mindset?

Slowly and with difficulty, I guess. Re-educating Wall Street seems to be one of Sculley's goals, but he had no immediate answers. One suggestion he offered was that, as Apple is becoming a truly global company, global ownership of Apple ought to be possible. I don't know how this would work, and Sculley didn't offer to elaborate; but it was pleasing to hear him willing to try something to break the present tight cycle.

I don't know how to reshape the world either, except perhaps to make heated noises in pointing out the problem, to ask for suggestions, and to lobby for change. So I am starting now. No fooling. Let Wall Street take the hindmost.

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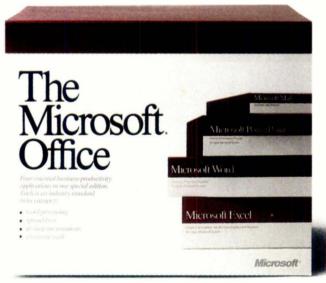
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Ergonomic displays wanted

The article in the February issue of *Australian Macworld* on the potential health threats in using computers was timely.

Now that Apple has developed a workable LCD display for its portable model it would seem there could be a big market for LCD displays for the other model Macintoshes as well.

I find that sitting in front of a CRT display for long periods does cause tiredness, nausea and eye strain. If Apple did have an alternative and more benign display device at a reasonable price, I would certainly buy one straight away. How about it, Apple?

Paul Howson
Warwick QLD 4370

Mac in Education - wanted

Being a fairly recent addition to the Mac-o-phile ranks I have been buying virtually any magazine with the word "Mac" on the cover. It was with considerable anticipation that I made my purchase of the March edition of *Australian Macworld*. It turned out to be an excellent buy and provided several hours of pleasurable perusal.

The article which prompted this letter was Keith White's "Mac in Education". I am taking up his plea for people to respond.

Our school is in the process of setting up an AppleShare network with something like 25-26 Mac Pluses served by an SE/30 with a 40Mb hard disk and sharing one ImageWriter. I would be interested in seeing what other schools and educators are doing with their students on these networks; what they have installed on their systems, what works well, what things to avoid.

I can only assume that I am not alone in finding the terminology which computer magazines use so freely just a bit overwhelming at times. Has anyone considered occasionally putting the odd translation in brackets?

I suggest that plenty of teachers have a more than passing interest in learning how to use Macintosh computers with their classes, and look forward to future editions of your magazine.

A confirmed Macophile,
D. Patrick Murray
Echuca High School, Echuca VIC 3564

Shareware authors stand up

My company Bookworks is preparing to release a guide to shareware for PCs. While we have oodles of information from the MS-DOS world, we are short on details of Macintosh shareware authors and distributors. If there's anybody who wants their offer listed, could they write and tell us? There is no charge for listing.

Michael Woodhouse
361 Orrong Rd
Carlisle WA 6101 Fax: (09) 470-3922

A happy customer

As a new Mac owner I was unsure of what software programme would best satisfy my requirements.

I noticed an advertisement in your magazine for Try & Byte at Crows Nest, NSW. Here I found someone who could explain what each programme did, examine the manuals that would be supplied and use the programme on their computer. I was able to buy a programme knowing exactly what I was getting. This approach to selling software can only be applauded and it is hoped that other retailers may follow their example.

Gary Heath
Eastwood NSW 2122

Many other retailers do follow the example. One of the most interesting comments I've heard on this topic lately, came from one of the larger distributors who deals with both Macintosh and DOS-retailers. The distributor, who understandably prefers to be unnamed, assured me that in their experience, Macintosh retailers were more dedicated, more involved in the product they sell, and on the whole more service-oriented. "The others tend to shift into box-moving mode all the time," said my source.

Perhaps we ought to hear it for the good guys? Apple Computer has begun to "evaluate" both its dealers and the third-party distributors with increasing vigour, and does seek to protect its image. Oh, to have some of the consumer information Apple collects? Wishful thinking.
O. L. I.

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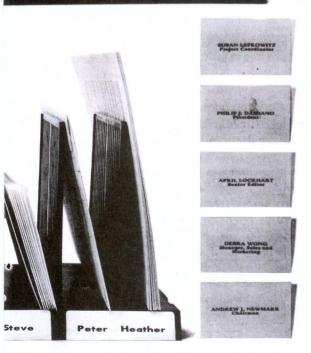
The LabelWriter takes up no more desk space than a tape dispenser. And is equiped with two powerful software programs.

One automatically extracts addresses from letters and prints them while your main printer takes care of the letter itself. The other allows you to design labels one at a time, controlling things like type size, font, and text position.

You can store labels from both sources in the LabelWriter's built-in database. Plus, you can even import labels from most software applications.
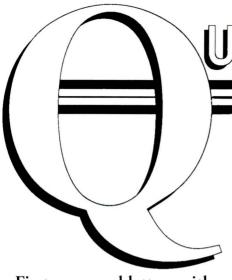
The LabelWriter is whisper-quiet, and 100% maintenance-free. You never have to add toner, or change a ribbon. Just pop on a fresh roll of labels and you're off and printing.

If you're already wondering how you ever got along without a LabelWriter, let us send you our brochure and tell you where you can go see one in action. Just call (02) 906 5227 or complete and mail the coupon below.

QUICK TIPS

Edited by Tony Williams

Fix transposed letters with a macro

Tip — If you find you are making typing mistakes such as typing htat instead of that, you are not alone. Transposing two characters is one of the most common typing mistakes. Here is a macro that fixes transposed letters with one keystroke. I do it in Nisus using the built-in macros but you could also do it in Word using MacroMaker.

Step 1: Place the cursor immediately after two transposed letters and start recording a macro.

Step 2: Press Shift-left arrow to highlight the second character. Cut it by typing Command-X.

Step 3: Press the left arrow to move the cursor before the first character and paste by typing Command-V. Press the right arrow to return the cursor to its original position.

Step 4: Stop recording.

It is important that you use the arrow keys to move the cursor so that the macro can be used anywhere on the screen. After naming the macro and assign it a keystroke you can quickly return two transposed letters to their rightful position.

Illustrator has no PICTure

Q — I have some Illustrator 88 files that I would like to output onto 35mm slides but my local slide bureau tells me that I need PICT files. Illustrator seems to have no way of saving in PICT format. How can I convert them.
Donna MacGuire
Frenchs Forest, NSW

Tip of the month

Under the line with Word

There are times when the standard Microsoft Word underline format, the underline clinging so close to the word that it virtually guillotines the descenders, simply is not good enough; particularly with sub-headings.

Here is a simple way of creating a well-spaced underline using Word's insert Formula command. The theory is to use the "Box" command, but follow it with an argument that tells Word to only draw the bottom edge of the box.

• Type Command-Y to show all hidden text.

• Select Insert Formula, for Word 4 users this is not on the default menu, or type command-Option-\, type an uppercase X, followed by another Insert Formula symbol the upper case letters BO short for BOTTOM). Now type an oppening parenthesis "(' and the text you want underlined.

Follow it with closing parenthesis ')". Do not type any spaces other than within the text itself.

• Type Command-Y again to hide all the hidden text. Your text should now be underlined. Any commas in the actual text must be preceded by another Insert Formula symbol.

Abbreviations for the other sides of the box are TO (top), LE and RI (left and right, respectively). If you want a complete box, leave out the BO and the Insert Formula that precedes it.

I use a simple MacroMaker macro to invoke the Insert Formula command and type the formula all the way up to the opening parenthesis. This makes the whole process no more complicated than the single keystroke required for normal underlining.
Alister Webb
Rose Bay, NSW

Editor's note:

I had a try at creating a macro using MacroMaker to do this and discovered that you can actually create even more of the command using MacroMaker. It is easy, just turn on Macro recording and type the following:

Command-Y Command-Option-\ X
Command-Option-\BO() Command-Y

then type the left arrow and stop recording. To use the macro execute it, type the text you want to underline and to finish underlining type the right arrow. The way this macro works is that it puts in the final close parenthesis then moves the cursor back between the two. After you finish you press the right arrow which moves the cursor past the closing parenthesis.

Example:

Normal underline

Spaced underline

created with the formula:

\X\BO(Spaced underline)¶

A There may be some other way but my method is cheap and provides fairly good results. Basically, cheat. I do this by previewing the image in Illustrator and use Capture version 2.0 to capture the screen display as a PICT file. Capture leaves a file on your System disk at the top level called Picture n where n is a number starting at 0. This produces a fairly good PICT image but it does have some problems. Anybody else with a solution please?

Unjustified lines

Tip In Microsoft Word you end a paragraph with a Return, and you use Shift-Return to enter a new line while staying in the same paragraph. A problem occurs if you use Shift-Return in a justified paragraph. In this case you get a justified line, often not what you want at all.

The secret is easy and, as far as I can discover, totally undocumented. Type a Shift-Option-Return and then the line that you just typed will not justify, which guarantees a much better appearance.

Unfortunately, this feature appears to have disappeared in Word 4.0

WDEF virus problems

Q In the February issue of *Australian Macworld* you mentioned a virus called WDEF. I checked my System file using ResEdit and discovered two WDEF resources. I deleted them but this seemed to destroy my System. What did I do wrong?
Lawrence Cole
Killara, NSW

A Only as a last resort should you use ResEdit to attempt to fix a viral infection. It is perfectly normal for the system to have WDEF resources. These are resources for defining a window; I am not certain of the number and IDs of the standard WDEF resources, but my system has two with IDs of 0 and 1. By removing your WDEF resources you almost certainly destroyed your system.

There is an excellent piece of

public domain software called Disinfectant that in its latest version 1.5 detects and removes the WDEF virus: this should be available from a user group or bulletin board. SAM's latest version also detects and removes it. I would expect that most other commercial anti-viral applications would have upgrades to cope with the WDEF virus. You should also note that the WDEF virus only infects your Desktop file. This is a hidden file that stores all the icons and entries in the comment box.

Apple has recently published a tip that says you can remove the virus by simply rebuilding the Desktop on any infected disk. To do this, hold down the option and command keys while the computer is booting (or in the case of a floppy, while you insert the disk) and then confirm the dialogue box that comes up asking if you want to do this. If you have more than one hard disk attached, keep holding down the keys until all of the desktop files have been rebuilt. Then reboot the machine to make sure that WDEF is not currently running. Not having actually seen the WDEF virus I have no way of confirming if this does the trick.

Tip If, like us at *Australian Macworld*, you have several Nisus macro files, then you might like to see how we handle the problem. Instead of manually opening each macro file when we need it, (which might involve searching through folders or even several hard disks to locate it, like any other file) we have a default macro which only holds a list of macros for opening each of the special-purpose macro files. The uppermost macro in each of the other macro files, called "AAA All Macros" is one that reopens the parent macro file. An example of one of such "Go-To" macro is shown below.
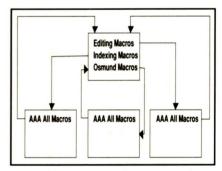
   # Open IDGmacros
   Catalog "Hard Disk:Nisus™:Macros Folder:Index Macros"

This will open the macro file called "Index Macros". It is important to specify the complete folder path.

Talking about Nisus macros, we have several that merely open up a

template document. The important thing to remember is that if you have a dynamic date stamp embedded into the template, you will want to update the date each time you use/print the file. We fix this by adding a macro line that updates the date for us as soon as we open the file . Especially if you put the time and date in the header or footer of your document it is easy to forget about updating the time and date, so you should create a macro that updates them and then opens the "Print" dialogue box. Here is mine which also saves the file.

   Update Time & Date
   Save
   Print...

This shows a relationship between four macro files which provides you with a Go-To-any-macro facility, and which makes the top one a "Home" file a la HyperCard's Home.

Quote of the Month: [On the new Macintosh IIfx]

"If Compaq had come out with this machine, people would say it's wonderful, but because it's Apple, people will probably poo-poo it. For some reason, Apple has to answer to a higher authority." Charles Wolf, an analyst at the First Boston research firm in New York.

Notes on the Mac IIfx:

The Australian prices set on the Mac IIfx must be among the sharpest ever set by Apple Australia, in comparison with the US price. (A quick calculation on the back of an envelope tells us that the Australian price is less, by several per cent. See our feature in this issue for the Australian prices.) For comparison, the US prices are: Single floppy drive version $US8,969. 80Mb hard drive version will be $US9,869; 160Mb hard drive $US10,969. A logic board upgrade, which can be swapped into a Mac II or IIx to increase it to the power of the IIfx, will sell for $US2,999 (Australian price not announced, but possibly of only academic interest). For once, a local buy is beyond a doubt the only sensible option.

* Incidentally, Apple Computer has extended the warranty on products sold in the US to a full year, finally catching up with its Australian and international policies.

* during development, the IIfx went under code names like "F19", "Stealth" and "Four Square".

* Apple assembled some of its best and brightest competitors for the two-year effort that created the Mac IIfx; several members of the design team are veterans of such workstation giants as Apollo Computer.

* The announcements that never came: In the weeks leading up to the announcement, several other product announcements were rumoured. Among those that have not come good are (from our Paris correspondent): a 32K cache memory card for the IIci; a souped-up ImageWriter II; MacTerminal 2.5, an evolutionary version that takes into account the forthcoming Communication Toolbox; and HyperCard 2.0. Do we get another shot at these?

* If you believe the Mac IIfx is fast, be warned that we have a way to go yet. Nothing made this clearer than a recent bunfight over the US Department of Commerce's proposed supercomputer export classification (which restricts exports of sensitive technology). Last month, the classification scheme was blasted by vendors of both mainframes and personal computers.

In particular, Apple Computer and Intel representatives said their companies would not be affected immediately by the plan but told the Under Secretary for Export Administration that their desktop products would fit the department's definition of a supercomputer within the next few years.

End of amnesty for software pirates

Software pirates will now face tough action from the Business Software Association Australia (BSAA) after its amnesty on prosecutions expired in March. In a campaign that warned against illegal copying of software, the BSAA issued about 3,000 copies of a guide that described the law to software users. According to BSAA Chairman Mark Herford, the lines of communication, including a confidential toll-free information line, are still open, but strong action will now be taken. "Users have been given the opportunity to comply with the law voluntarily," he said. "Now where we have evidence of software theft, we will send in the lawyers. Eight major organisations are being investigated, including leading companies and government departments. Once we have the evidence, we will commence legal action."

The action is in line with a similar tightening of the screws in the US, where the Software Publishers Association (SPA) representing some 500 personal computer software publishers, is aggressively ramping up its software piracy enforcement efforts. The organisation is sending letters to chief executive officers of identified corporations - bypassing IS managers - telling them that they are believed to have unauthorised copies of PC programs, in violation of software copyright laws.

The SPA contends that as much as 50% of all PC software programs in the US are unauthorised.

Companies targeted by SPA have the opportunity to respond within 48 hours agreeing to an SPA audit, in which SPA auditors check hard-disk directories against the company's PC software purchase records. If unauthorised copies are found, the company would then have to destroy them and pay a penalty of the full retail price of each copy to the SPA's copyright defence fund. The company can then repurchase the software licenses for the unauthorised users. In September of last year, the association set up a toll-free 800 number designed to encourage employees or ex-employees of offending companies to call in and report the unauthorised copying of use of software. That tactic angered one US vice-president whose CEO received an audit letter.

"Any disgruntled employee could call the number; suppose he set the trap himself by copying software?" said the executive, who requested anonymity. "We're in a very competitive industry. There's no way we'll open our doors to anyone."

Since the fourth quarter of 1989, some 30 audit letters have been sent, said Mary Jane Saunders, SPA general counsel. Twelve of the targeted companies have settled, paying an average of between $US20,000 and $US50,000 to the fund. Ten cases are

pending and another eight are in some stages of notification.

"We are giving companies a quiet, dignified way out of what could be a very embarrassing lawsuit," Saunders said. "I could make a lot of lawyers across the country very rich litigating these cases."

If the company ignores the audit letter, the SPA will bring a lawsuit against the company, she said.

Ron Goldfarb, manager of new office systems technology at Pratt & Whitney, has his own way of coping with in-house piracy. Goldfarb said he personally snipped unauthorised floppy disk copies in half with scissors; if he found repeat offenders, he did the same to their neckties. "The annual memo doesn't quite do it, but tie-snipping definitely had an impact," he said.

Instead of a maths co-processor, plug in your Hewlett-Packard calculator

A $US350 calculator introduced by Hewlett-Packard early in March can be attached to a Macintosh to save a user the expense of an integrated maths co-processor. Called the HP 48SX, the calculator is a little longer than a normal hand-held calculator, but it has a large display, according to HP. With the addition of a standard

cable and communications software for $US60, the calculator can be plugged into the Mac. It can then be programmed from the Mac and can access the Mac's printer and disk drive. If a user wants to prepare calculations as part of a report, for instance, the calculator will crunch numbers while the user is working with other applications. When the maths is ready, it can reportedly be dumped into the report by the use of a window. This function only uses the calculator's memory. In addition to functioning as a high-level maths calculator, it integrates maths and calculus into graphics, the company said.

Sharp full-colour fax

Sharp displayed what it claims is the world's first full-colour facsimile machine at CeBIT '90 computer show in Hanover, West Germany. Using the company's image compression technology, Sharp's new fax can transmit an A4-size full-colour document in three minutes. When used with an optional G3 Unit for monochrome printers, it can also communicate with Group III fax machines. Scheduled to be released on the Japanese market by the second half of this year, Sharp estimates the price will be 3.5 million yen ($30,440). The company will begin shipping to overseas markets as soon as it receives communications standards authorisations.

version of the A/UX kernel that allows almost all Mac applications to run. A/UX allows you to run Unix, Mac, and now even X-Windows applications concurrently, and to cut and paste between any of them.

Now for the nitty gritty. Like its first version, A/UX 2.0 is a port of Unix System V release 2 with Berkeley 4.3 enhancements. It complies with the SVID compatibility test and with Posix 1003.1; translated into English this means that it is a standard version of Unix providing all the standard libraries and commands.

It allows you to select AppleShare volumes and printers via the Chooser in the normal Macintosh way, and allows MultiFinder to be run concurrently with A/UX.

Readers familiar with the Macintosh Programmer's Workshop (MPW) will be happy to hear that the "Commando" system of using a dialogue box to prompt you for the hard to remember options is now in A/UX. In other words, here is a Unix with mouse-clickable commands.

All in all, the product provides a real windowing Unix development environment on the Macintosh. It should be shipping by late April.

MacIDRIS in network version

One year ago, Whitesmiths Australia Pty Ltd. broke through the size barrier when it launched a Posix-compliant UnixX operating system for the Macintosh, capable of running on the 1Mb Mac Plus. At the time, it was very much a developer's and student's version, intended for stand-alone Macintoshes.

Now, Whitesmiths is releasing a network version of its Unix variant, MacIDRIS, capable of networking over either AppleShare or TOPS networks, on LocalTalk or Ethernet cabling, and supporting 32 nodes.

MacIDRIS will run on any Macintosh, including the Macintosh Portable, the SE and Plus, with its only requirement being one megabyte of RAM and at least 5Mb of free space on the user's hard disk. It is the only Unix-like environment available on entry-level Macintoshes. The network

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Unix on the Macintosh becomes a viable, even enjoyable option

A/UX version 2.0 - a true Macintosh Unix

In March, Apple Computer Australia announced A/UX version 2.0. The difference between version 1 and 2 is like chalk and cheese. In retrospect, it would seem that the first version may have been shipped to quieten down the criticisms of the MIS managers ("What, it cannot run Unix – not a real computer then!") without

actually intending it to be a product in use.

Version 2.0 provides a seamless integration between the Mac OS and Unix. It is almost impossible to tell at first glance that you are running A/UX. A Finder window is running, and if you want to run a Unix application, just double click. Want to run a Mac application? Double click. The applications do not even have to be 32-bit clean. It is possible to run a special

version requires a Macintosh with floppy drives only. This contrasts with Apple's A/UX offering, which requires an 80Mb hard disk and at least a Macintosh II with a Paged Memory Management Unit.

In addition, MacIDRIS is opened with a double-click of the mouse, like any other Macintosh application. A user can enter MacIDRIS to perform those tasks that Unix does better than the Macintosh operating system, then export the resulting files back to the Mac desktop, where they may be picked up and processed further with any Macintosh software. *Australian Macworld* has tried MacIDRIS for batch processing of text files in its editorial production.

"On the Macintosh, we had found no facility or application that would batch process text," says Associate Editor Tony Williams, a Unix programmer from way back. "Until MacIDRIS came along, we had been seriously considering acquiring a separate Unix system to get around this hurdle. Now, we can create custom applications which each journalist or production editor may keep on their own small workstation, and in most cases the operator need not know that he slipped in and out of Unix in the process."

Because MacIDRIS will run under MultiFinder, the user can flip back and forth between it and other Macintosh applications without having to reboot the system. It is possible to run a background task under MacIDRIS while continuing to operate the Macintosh. A HyperCard stack containing the full 1,700 pages of documentation is set to be released soon. A cross-development tool between MacIDRIS and A/UX is also in the pipeline, along with added TCP/IP functions.

MacIDRIS includes an extensive set of Unix-style utilities and complies with IEEE POSIX, ANSI and ISO standards where they apply. Program development tools include libraries to compile and link user-developed programs; multi-user utilities to set up and control multi-user operation; terminal and networking utilities to support special terminal requirements and remote computer communications; multitasking; shared memory, locking, messages, pipes and

named pipes; standard I/O; shell scripting; and system control utilities to control program execution and to provide related timing services.

On a Portable Macintosh, MacIDRIS has a special advantage; an operator in the field commands the full Unix communications power to stay in touch with a Unix host in head office, or to make use of the worldwide Unix networks, such as Usenet. With a serial printer connected, a MacIDRIS user gains the print queuing and spooling advantages of Unix.

For developers, Whitesmiths is already a worldwide a supplier of C, Pascal, Cross and native compilers that are in widespread use throughout the world and offers specialized aids such as C DOC, a utility that automatically documents suites of C programs, preparing comprehensive standardised reports based on the actual source code. C SCAN is a utility that allows C programmers to examine the source code of the program on a logical basis, using symbolic names to locate and display the appropriate portions of code. The source code of any Whitesmiths product may be licensed for a one-time fee.

The single-user version of MacIDRIS begins at a price of $399 for a Student Edition complete with system utilities, C and Pascal compilers, and basic documentation. A complete developer single-user system costs $1,499, including full support for the UUCP network, languages, a very comprehensive multi-volume documentation kit, and one year's software maintenance. MacIDRIS network version supports up to 32 network nodes for an all up price of $5,000. The network version requires a Macintosh with floppy drives only. For April only, the Student Edition is available for the special price of $349.

Why the name "IDRIS?" "Unix" is of course a trademark of AT&T, except in Japan, where we understand that AT&T could not obtain the trademark because a bicycle accessory manufacturer owned the name and refuses to let it go.

Contact: John O'Brien, Managing Director, Whitesmiths Australia Pty Ltd, 3/47 Regent Street, PO Box 756 Kogarah NSW. 2217, Australia. Telephone +61-2-588-7652 or +61-2-588-7655; Fax +61-2-588-7023; UUCP: @wsa.oz.au; AppleLink: AUST0282.
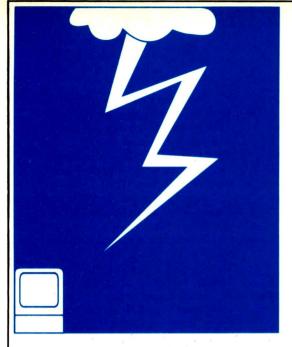
Seybold Seminars '90 conference

By John Stewart

The focus of the Seybold Seminars '90 conference on electronic publishing was desktop pre-press on all hardware platforms. Even traditional suppliers like Scitex, Hell and Crossfield attempted to convince the desktop fraternity they did not intend to be left out.

But the glory went to the Macintosh with complete pre-press systems shown by Barneyscan, Optronics and Pre-Press Technologies and software shown by Aldus, Letraset, Adobe and Hyphen (better known for its speedy RIPs).

Barneyscan Corp. introduced a family of integrated products designed to bring high-quality colour design and pre-press capabilities to the desktop. The Color Imaging System includes the CIS 4520, a $US27,995 scanner that works with the Mac II and lets

users scan positive or negative film or transparencies in full 24-bit colour in 35mm, 2in, 4 x 5in, and film strip formats. Also offered are the CIS 3510, a 35mm slide scanner selling for $US9,495; and CIS Gallery, $US695 image database software for indexing and cataloguing scanner images. (*The calibrated separation software is something else, but John was prevented from commenting on that. Suffice it to say that a large photographic print on the wall in* Australian Macworld *has fooled more than one visitor – Ed.*)

Quark gained the most gasps with XPress 3.0, sporting so many new features and re-designs that they must have no items left on users' wish lists; including a pasteboard, object grouping, spread and choke, vertical justification, picture and text locking,

retrospective master items, thumbnail editing and enhancing current attributes considerably. Quark's was the hardest stand to physically get into for a demo.

If you could not get into Quark's stand, the alternatives also ranked high above last year's offerings. The professionally-oriented DesignStudio is being matched by a suite of complimentary high-end offerings from Letraset, culminating in ColorStudio which is a sort of ImageStudio times three, in colour.

Aldus pins its hopes on version 4.0 of PageMaker, with its wide range of added features. Aldus also showed Aldus PrePrint where they have attempted to make the new world of desktop colour easier to grasp. ColorStudio and Adobe battled it out in an Apple-sponsored room featuring "Pre-press on the Macintosh" where consultants and training groups performed live separations and proofs in an effort to establish the viability of the new separation-capable software.

Optronics showed a desktop drum scanner (barely in the desktop price range at approx. $US70,000) and Pre-Press Technologies included a re-badged Leaf 4 x 5 scanner to complement their pioneering software.

IBM's announcement (see other news in this issue, p.35) giving Adobe the thumbs up on font technology was the most dramatic event, sending Adobe shares directly from their all time low value to an all time high near the $US40 mark. Apparently, the font wars have only just begun. However, the Seybold report released at the show concluded that Apple's Royal font technology, now called True Type, was in fact a better performer that Adobe's implementation through Adobe Type Manager. Letraset is giving Altsys' Fontographer a run for its money with its latest offering of FontStudio, a powerful PostScript font creation program with full Adobe Type I compatibility.

One of the best things about this Seybold conference was the open invitation for developers to bring prototypes for evaluation by the high profile visitors. Indeed, only new products were allowed to be shown in exhibition rooms, considerably reducing the hard-sell marketing so prevalent in computer shows. There

was a good camaraderie amongst the competing developers. One of the developers of the Array scanner on a visit to the Barneyscan booth, looked at the new Barneyscan 4 x 5 scanner (directly competing product) and said: "Gee, that is a really great product." One would hope this sort of spirit is always present.

Other Seybold product news

Although last month's Seybold Professional Publishers Conference lacked the fireworks that sparked last autumn's gathering, it did feature trends in openness and third-party support for new hardware platforms.

The charge toward openness was led by Adobe Systems. At the last Seybold conference, CEO John Warnock concluded his lambasting of rivals Apple Computer and Microsoft by pledging to publish the specifications of Adobe's PostScript Type 1 fonts. Adobe kept its promise at this month's conference. The Type 1 specifications fill a 102-page book, which the company was peddling for $US14.95 at its booth.

The specifications only describe the end products, or fonts, not how to generate them. This omission of a key aspect was not lost on Microsoft, which is developing a rival font technology with Apple called True Type. "Only Adobe can improve on PostScript because their rasteriser [the font-generating technology] is not open," said Steve Ballmer, vice-president of systems software at Microsoft. Ballmer claimed Truetype's rasteriser will be open.

Openness was also on the mind of Atex Publishing Systems which announced an open-interface strategy at the conference. Atex, which has computer-aided publishing systems installed at more than 750 newspapers worldwide, said third-party vendors will be able to interface their products with Atex's traditional systems as well as with its Total Publishing Environment. The company will initially target third-party vendors of imaging and display advertising workstations.

Fonts played a big role at the conference, where more than 60 products were previewed or introduced.

Bitstream gave a first glimpse of fonts developed using Apple's True Type (previously known as Royal) technology. The company demonstrated Nimbus Q, its font rasterising software which now boasts support for Adobe Type 1 fonts.

Agfa Compugraphic will have the Adobe Type Library on CD-ROM available in April.

Among the colour calibration solutions shown was Astral Development's Picture Publisher, Version 2.0 for the Macintosh and the PC, which features a new colour calibration routine. It also offer a new colour image-editing technology that's not a part of Picture Publisher.

Letraset exhibited Design Studio Separator, a colour separation annex for its new high-end page layout package, which will perform full-page colour separations for DesignStudio documents. The company also announced Color Prep (a code name for now) which will load new parameters into the colour table included in ColorStudio.
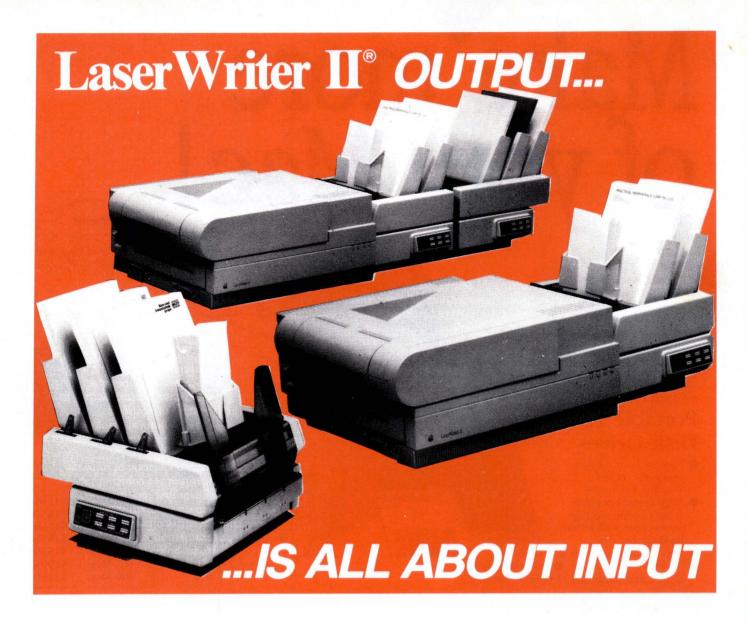
Also coming in the colour arena is Crosfield/Lightspeed's new Super Design Color Layout System. This design station will feature a full-colour, accelerated Mac IIx along with a second black-and-white monitor.

Adobe has acquired Emerald City Software, which makes several PostScript-based products, including Type Align and Smart Art. "It's a full merger," said Russ McCann, Emerald City's vice-president of sales and marketing. "They are taking over all the products, and all the employees will have jobs at Adobe in similar capacities."

A number of vendors threw in their lots with Hewlett-Packard Co's new LaserJet III. Extended Systems unveiled a printer-resident spooler that provides up to four users simultaneous access to the printer's desktop publishing and graphics capabilities. Available immediately, the product is priced at $US845.

Insite Development ported its Macprint device management software products to the LaserJet III. Macprint will provide connectivity between Macintoshes and the LaserJet III, at a price of $US149.

Weeks before the conference, Israel's Scitex Corp announced it

LaserWriter II® *OUTPUT...*

...IS ALL ABOUT INPUT

Now, at last, there's a solution... the ONE solution that transforms your Macintosh/Laser Writer outfit into a *true business machine.*

That solution's the BDT LaserFeeder which gives you software selectable multiple bins in models with a choice of two, three or six different kinds of paper, plus envelopes.

Alternatively, you can load ALL bins with one kind of paper and set the machine to print 1,300 copies while you go out to lunch and a meeting afterwards!

Now, at last, everyone on your Macintosh network can print out a letter from their desk, just as they ought to have been able to do in the first place... first page letterhead, plain paper followers, invoice, envelope.

Each can make unique paper selections which become part of the print command sent through the Appletalk network to your BDT LaserFeeder equipped LaserWriter.

The BDT Print command and paper bin selection software is fully compatible with all popular programs such as Microsoft Word 3 & 4, MacWrite 5, WriteNow, Nisus, Excel, PageMaker3, Filemaker Plus and II, MacDraw II, Cricket Draw, and so on.

Make more of your Mac!

minicomputers and mainframes. uShare implements the full range of Apple Filing Protocols, and is compatible with all standard Mac applications. Contact: Sony Australia, 33-39 Talavera Road, North Ryde NSW (02) 882-6666.

Motorola Unix-based RISC servers: From Motorola comes a line of Unix - based Reduced Instruction Set Computer (RISC) servers that use the company's 88000 RISC microprocessors. The servers are designed to work in Ethernet LANs supporting MS - Dos, OS/2, Macintoshes and DEC machines.

The series ranges from an entry-level version supporting small local-area networks of less than 10 users to a high-end model that will support more than 250 users. The servers will support the Transmission Control Protocol/Internet Protocol and, in the future, Open Systems Interconnection protocols.

Motorola is positioning the servers to compete with the IBM RISC System/6000 series. But as an incentive to users, OEMs and value-added reseller customers, the company will price its servers at minimum of 35% less than the comparable IBM models. Analysts familiar with the Motorola servers said they were impressed with the technology and marketing strategy.

"It's a good price/performer and the servers are more high-powered than the IBM RISC 6000 series," said John Murphy, senior staff consultant at Wohl and Associates. "Since they're already in the semiconductor business, they're bringing an economy of scale to the market that will be hard to beat."

Sharing of HP LaserJet printers

Extended Systems has announced the availability of several products that permit Hewlett-Packard LaserJet printers to be shared by several users, including an interface board that lets four users share a LaserJet III, an interface board that allows two users to share a LaserJet IIP, and a pair of AppleTalk interface devices.

The AppleTalk boards provide general-purpose connections for LaserJets as Printer Access Protocol-level servers on LocalTalk, and also allow LaserWriter emulation in PostScript environments. Both units are compatible with standard Apple network cabling, including Phone Net and LocalTalk. Both are available now, in limited quantities. Contact: Extended Systems, 6062 Morris Hill Lane, Boise, Idaho 83704; (US) (208) 322-7163.

The Best 45MB Removable......

Just Got Better.

Voted the best by the industry's toughest critics. DataPak is the only storage system ever to win three of the industry's most prestigious awards:

- MacUser Editor's Choice Award as "Best Storage Product, 1989"
- MacWorld 1989 World Class Award for "Best Alternative Storage"
- MacUser Europe's "Best Hardware Peripheral, 1988"

MASS microsystems

Why trust your valuable data to anything less than MASS Micro?

New DataPak IIcx. The only single 45MB removable drive configuration designed to match the footprint and aesthetics of the new Macintosh IIcx and IIci, and like the original DataPak is the quietest around.

Original DataPak - still available in three configurations: DataPak - a single 45MB removable cartridge drive; DataPak *duet* with two 45MB removable drives (the ideal backup system!); and DataPak *hd*140, a 45MB drive packaged with a 140MB hard disk drive.

Compare them to any other storage media, including fixed hard drives, and DataPak removable cartridge drives give you much more features, value, flexibility, and performance for your money:

Extra-Value. All DataPaks now come bundled with software that makes your life easier:
◆ *SUM II*™ - Symantec's award-winning disk utilities package (a $219 value) is included at no extra cost with every DataPak.
◆ *PlatinumShare*™ - 4MB of the industry's most outstanding public domain software featuring word processing, screen and virus utilities as well as 12 terrific games.
◆ *ProWare*™ - demo versions of today's hottest software packages from leading Macintosh publishers.

Economy. It's an inexpensive way to add capacity now and in the future. Instead of buying a large, costly hard drive, just add another 45MB cartridge at a fraction of the cost.

Portability. Imagine putting a graphic library, a year's financial records, or several price catalogs on a 45MB cartridge that fits in your coat pocket!

Security. The cartridge hard case protects your data. And if you keep sensitive information, no need to lock up your entire computer. Simply secure your removable cartridges.

Performance. DataPak's blazing fast 20ms average access time and 1:1 interleave outperforms many fixed disk drives. And with AutoPark/AutoLock heads, surge protection and external SCSI switches with internal terminators you get hassle-free operation.

Whether you're doing desktop publishing, graphic design, CAD/CAM, generating mounds of spreadsheets, or producing thrilling desktop videos - you need DataPak. The first and still the best family of removable cartridge drives for the Macintosh.

Contact your dealer for more information or call for your nearest dealer (8.30-6.00 EST):
Hexon Communications Pty Ltd. 20 Hordern Street, Newtown. Sydney. NSW. 2042.
Facsimile (02) 550 2460
Telephone (02) 550 3899

Hexon

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Canon interpreter turns copier into colour PostScript printer

Canon introduced in March its PostScript interpreter, the PS-IPU, which incorporates Adobe PostScript technology and interfaces with its Colour Laser Copier 500 to transform the copier into a colour PostScript printer.

Designed for fast interpretation of Adobe colour PostScript documents, the PS-IPU lets users print documents created in colour applications that support colour PostScript, according to Canon.

The copier-cum-printer outputs onto regular paper, unlike other colour laser printers. The system boasts a resolution of 400 by 400 dpi and a colour printing speed of five pages per minute.

"I believe this system will become very popular in service bureaus because it outputs onto regular paper," said John Warnock, president and CEO of Adobe.

All applications written for colour-display Macintosh computers already support colour PostScript, as do many applications written for colour-display PCs, so developers won't have to write new drivers, according to Warnock.

The PS-IPU will be available in the third quarter and comes with 12Mb of RAM (expandible to 24Mb), Canon said. The interpreter contains built-in interfaces for RS-232C, Centronics, and RS-422/AppleTalk systems. An end-user merely hooks a computer to the

Which fonts?

IBM opts for Adobe, Microsoft for Apple, and Hewlett-Packard for HP

Giving users a consistent font architecture for all its systems, IBM announced at the Seybold publishing conference that it plans to implement over the next two years Adobe Type 1 fonts and Adobe Type Manager (ATM) font rendering technology on its SAA mainframes, minicomputers, and PCs.

For IBM users, this means a consistent printing and display technology not only across SAA systems, but Unix systems as well. Only weeks earlier, IBM announced support for Display PostScript in its AIX Windows and NeXTStep systems, placing IBM on the Adobe Display PostScript bandwagon already occupied by NeXT Inc, DEC, and Scitex. "We will be able to expand our 'print anywhere' strategy to a 'view and print anywhere' strategy," said Lee Reiswig, vice president of programming for IBM's entry data systems division.

Reiswig said IBM's support for Type 1 fonts in PostScript was not a technology-driven decision but came in response to overwhelming requests from its customers. "There are over 600 Type 1 fonts available today, and our customers have spent over $US4 billion investing in Adobe fonts and font-rendering technology," Reiswig said. "Our customers have asked us repeatedly to support Adobe."

The move is also a surprise comeback for Adobe Systems, which was considered the loser to Apple and Microsoft in last September's "font wars". Adobe announced that it would make ATM available for OS/2, Microsoft Windows, and other DOS applications by the end of 1990. Adobe handed out 1,000 copies of its Type 1 specifications, demonstrating that the PostScript format is now open. Significantly expanding its sources of typefaces, Adobe also announced that it had licensed the typeface libraries of Agfa Compugraphic and Monotype. Fonts from those libraries will be shipping as part of the Adobe Type Library by the second quarter.

Softening the blow somewhat, IBM said it will also offer support for Apple/Microsoft's True Type technology, but only on its low-end PS/2 machines.

For its part, Microsoft declared that it will integrate True Type into Windows in a version it will bring out by the end of this year, as well as into OS/2 Presentation Manager 2.0. Microsoft said it was already licensing True Type to ISVs so they could integrate the font technology into DOS and other applications where it is not part of the operating system.

Microsoft also unveiled True Image, its page description language incorporating TrueType. True Image will be incorporated into future Apple printers, said Steve Ballmer, Microsoft's senior vice-president for systems software.

Apple is now working on a True Image printer and will change the drivers in the upcoming System 7.0 to work with TrueType, said Jim Gable, Apple product manager. "The user isn't going to notice any difference between the way the old drivers worked with the older printers and the way the True Image drivers will work," Gable said. "Printing of TrueType fonts will be transparent to the user."

Type vendors generally praised TrueType for its capability to handle Type 1 fonts as well as its own. As a result, many vendors see TrueType as a truly open format that will allow for other formats to work within it. Several type foundries, including Bitstream, The Company, Linotype, and Monotype, have already announced support for TrueType.

Still others in the industry feel the font drama is a sideshow to the main event: Agfa Compugraphic's Intellifont, which is embedded in Hewlett-Packard's new LaserJet III and other printers, is a technology of which Adobe, Apple, and Microsoft should take note.

"The majority of people who buy laser printers buy HP. When they buy HP, they are buying into Intellifont technology," said Michael Weiss, president of MWA Consulting in California.

HP's recent announcement of its LaserJet III, incorporating PCL 5, will pressure Adobe and Microsoft, Weiss said. "HP has over 2 million printers installed," Weiss said. "Adobe has 25% of this and Microsoft has zero. With this much of an installed base using Intellifont, and the fact that HP is likely to ship a million printers in 1990, I don't see how anyone could ignore this or PCL 5."

interpreter which is itself plugged into the copier.

The unit also includes software with 39 typefaces stored in ROM. Pricing for the PS-IPU was not available at press time.

Tony Bove, co-editor of *The Bove and Rhodes Inside–Report*, feels that the copier's capability to output onto regular paper is a boon to publishers. "People want plain paper output because it most resembles what you'll see on the printed page," Bove said.

Jonathan Seybold, publisher of *The Seybold Report on Desktop Publishing*, said that calibration is one issue that remains unresolved for this system. Publishers will have to use the trial-and-error methods already employed today to get colour output to match what they see on screen, according to Seybold.
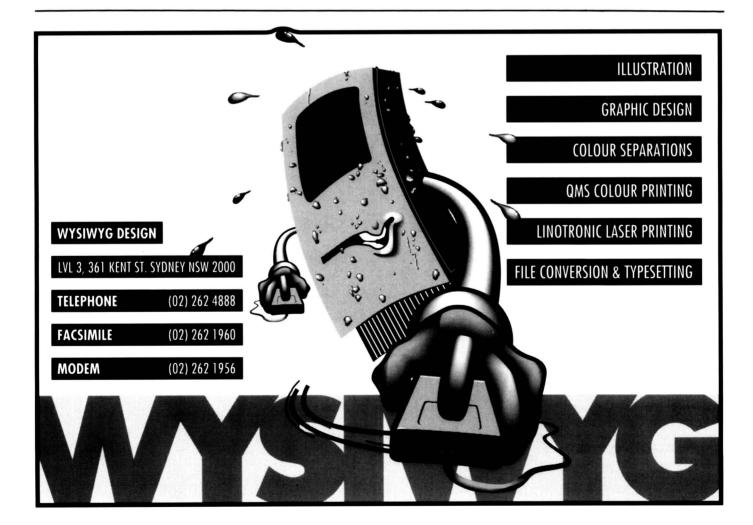
Hewlett-Packard's new LaserJet III – cheapest name-brand PostScript printer on the market

Hewlett-Packard Co's unveiling of the LaserJet III opens a new chapter in the PostScript printing saga. HP will ship a Mac-compatible LaserJet III in the second quarter. For this printer, HP will make available an AppleTalk interface. With the PostScript cartridge and 2Mb of memory, the LaserJet III costs about $US1,000 less than the LaserWriter NT.
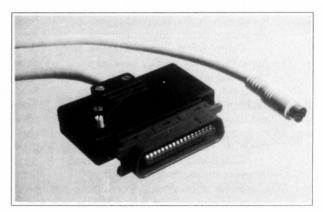
A key value to users is HP's Resolution Enhancement technology. Resident in an application-specific integrated circuit (ASIC) designed by HP, this technology adjusts the position and size (modulation) of dots in letters and graphics. The resulting output is free of the stair-step effect common in 300dpi printing. HP has said that this higher resolution will not degrade the printing speed.

Data sent to the printer is examined by the ASIC, which looks at the positioning of each dot relative to that of the other dots. It then makes the appropriate adjustments, varying the size and placement of dots to smooth curves and fill in white space. Since resolution enhancement takes place last in the printing cycle, even PostScript output, used with the company's PostScript cartridge or through some other method, will benefit from this feature.

Another new wrinkle is the implementation of HP's proprietary PCL 5 that incorporates

Agfa/Compugraphic's Intellifont technology. The LaserJet III is the first machine to use PCL 5, and will ship with eight scalable fonts. Also with PCL 5, HP is boasting sharper graphics through its HP-GL/2, the vector graphics language available in its plotters. With HP-GL/2, the LaserJet III can print plots and sharpen the appearance of line drawings.

"Even if you consider the cost of the whole configuration, it still is the cheapest name-brand PostScript printer in the marketplace," said Jonathan Seybold, publisher of *The Seybold Report on Desktop Publishing.*

Gassee leaves Apple

T he rumoured departure of chief product strategist Jean-Louis Gassee from Apple Computer became official in March when the company said that Gassee, 45, will leave the company after "an orderly transition". For now, chairman and CEO John Sculley has stepped into

his role, a significant management decision that is expected to have an overall soothing effect on the company, which last month announced a trim-back of its work force by 3%, or 400 positions, as part of a company-wide cost reduction program.

One observer dismissed reports of Apple's woes, saying they have been blown out of proportion. "The fundamentals are not nearly as bad as has been reported, and the bug fixes and missing links for the product line are going to happen sooner than people think," he said.

Comment: It would be hypocritical for me to moan the departure of Gassee, for all his virtues. After all, the following editorial outburst in March 1989 was mine:

"I see a different Jobs inside Apple: one who inherited his obstinacy; who thinks Apple Über Alles; who decides unilaterally what users want; a visionary but no marketeer. The person is Jean-Louis Gassee."

At the time, I was stunned by Gassee's rejection of PostScript, which was after all the printing language that built the Mac's reputation. There have been numerous occasions to question Apple's product marketing decisions in the past couple of years, especially its dubious achievement of leaving its entry level hardware unimproved for four years – a lifetime in computing. The Plus, launched in 1986 as an advanced machine, is sold in 1990 as an also-ran. Apple's only low-cost printer, the dot-matrix ImageWriter II, has remained unchanged since its introduction in 1985. At the high end, progress has been impressive, of course. Five long years, and Gassee was in charge of product development. In that same issue (March 1989), Gassee was quoted as saying that a low-cost Macintosh could not be done "in the next two or three years". Let's hope his successor takes his title literally.
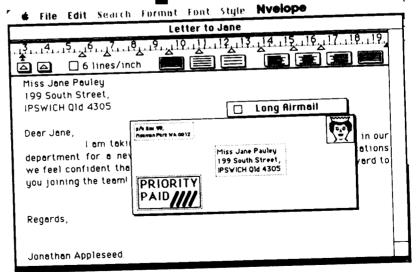O. L. I. 　MAC

▼ RasterOps

The world leader in 24-bit colour display technology for the Macintosh , now brings you the most complete range of colour products for the Macintosh yet seen.

▼ ColorBoard 224 System

Amazing 24-bit true colour, teamed with the crystal sharp Trinitron-based RasterOps 19" colour monitor (1024 x 768). Blindingly fast hardware pan/zoom and extended desktop, all make the 224 system the very best in versatile colour for the Mac II series.

▼ ColorBoard 264

One of RasterOps' big success stories. 24-bit colour for your Apple 13" Hi-Res colour monitor (640 x 480) at an earth shattering price. Available for both Mac II series and SE/30. Complete with 32-bit QuickDraw.

▼ ColorBoard 208

At last, the 8-bit colour display board you've been waiting for. Unbelievably low cost 8-bit display card for your Mac II— BUT—with the addition of four video RAM chips it becomes a ColorBoard 264. A simple 24-bit upgrade from an 8-bit entry level product. Buy 8-bit now—decide about 24-bit later !

NEW PRODUCT

▼ ColorBoard 364

Another big hit from RasterOps.

This 24-bit Mac II card has everything. 24-bit display, VCR framegrabbing, plus the sensational "Picture in Picture" innovation which displays live video in a resizable window on your Apple 13" Hi-Res colour monitor.

NEW PRODUCT

▼ ColorBoard 108+ System

The famous large screen RasterOps 8-bit colour solution. See 256 fabulous living colours. Available for Mac II and SE/30.

Mitsui can give you all the answers on the superb range of products from RasterOps, including the Calibrator Series, framegrabbing products, 16" and 19" colour and monochrome monitors.

Check out RasterOps now and you'll understand why the colour you see is the colour you get !

▼ Barneyscan

Another Mitsui world beater—the sensational Barneyscan is the standard in affordable ultra high resolution transparency image scanning, in full 24-bit living colour.

How's this for versatility. Imagine being able to scan at 1000 dpi, any image from a full colour transparency directly into your Mac II. Then, via Barneyscan's XP software, colour correct and manipulate the image. Finally combine the image with your XPress or PageMaker file, for output to one of Mitsui's colour printers. Professional full living colour publishing at affordable prices.

▼ Plus. Plus. Plus.

The Barneyscan in conjunction with the Mac II can be used to perform amazingly high quality colour separations for output direct to film.

If you're involved in colour printing or publishing, you must talk to Mitsui today and find out how you can save 1000's of dollars with this unbelievable package.

▼ Colour Printers

Mitsui's new innovative range of colour printers represents the ultimate standard in value for money. Call Mitsui now for the very latest information on desktop colour output devices. A demonstration is an absolute must.

ing Mac...Think Mitsui

▼ Mirus FilmPrinter Plus

The genuine digital 35mm film recorder for clean, crisp presentation graphics, directly onto 35mm slides - all in full 24-bit living colour.

Combine your graphics with any professional software package, PowerPoint, XPress, PageMaker, etc. Whatever you're using - Mirus will handle it ! With the Mirus FilmPrinter you are able to not only save big dollars by completing the whole project completely inhouse, but also give your slides and presentations that highly professional "not available elsewhere" look.

Sharp Colour Image ▼ Scanners.

Yes—they're also available from Mitsui. The Sharp JX-300 (A4 size) and JX-450 (A3 size) have become the industry standard for the input of 24-bit colour images from reflective art material. With the JX-450, you can even scan from any size transparency.

Now compatible with an amazing thirty five different Mac software packages - these Sharp scanners are simply the best !

▼ Ricoh PC Laser 6000/PS

The budget priced genuine Adobe PostScript laser printer. This 6ppm wizard features the fast Version 50.5 Adobe PostScript, along with a complete set of 35 outline fonts. With 2Mb RAM standard (upgradable to 4Mb), the Ricoh will also happily work with your soft fonts. The Ricoh is complete with AppleTalk interface, so you can just plug and print from any Mac. As a valuable added bonus, the Ricoh also features HP LaserJet S/II emulation, together with parallel and serial ports for a mixed Mac and IBM environment.

▼ PLI

The world leaders in removable storage media technology for the Mac.

▼ PLI 600Mb Infinity Optical

Yes, it's erasable and rewritable! This Sony-based optical drive, rates amongst the lowest cost per megabyte propositions ever seen. Ideal for any "media-hungry" application.

▼ PLI Infinity 40 Turbo

The market leader in 44Mb removable cartridge drive technology. It's the industry standard. Amazingly fast, with near zero response time and with PLI's added bonus, "TurboWare" —the software that's yours absolutely free with every PLI drive.

▼ PLI TurboFloppy 1.4

Allows users of ANY MAC to add compatibility with the new 1.4Mb standard of floppy diskette format. Just plug in, or daisychain, the TurboFloppy to your SCSI port - and you've got access to 1.4Mb floppies. Each PLI drive is supplied complete with all cables and most importantly—TurboWare. These high performing utilities, give you improved back-up, spooling, and disk optimising capabilities.

Check out Mitsui's new range of laser printer enhancement products today. Would you like to increase the resolution of your standard LaserWriter to 800 x 800 dpi ? Talk to Mitsui and find out how you can save hundreds, or even thousands of dollars by keeping your type output inhouse !

All Mitsui's products are available through your Authorised Apple Reseller. Call Mitsui now for more information and friendly, helpful, expert advice on any of the above products.

Accredited Distributor

Mitsui Computer— Apple Third Party Distributor of the Year.

MitsuiComputer
Limited Incorporated in NSW

I wondered about today's scientific opinion on the use of garlic and horse radish in the treatment of sinusitis. Five minutes later I was printing out four pages on the subject. Very effective too, I might add.

• A writer wanted a brief on diabetes for a brochure. Easy. In four minutes I gave her a three and a half page outline on the disease, its variations, causes and cures. (See screen dump 1)

• A friend travelling to the US wanted to know the situation with the car return business; could he find a car to drive from Los Angeles to New York on a no-cost, no-profit basis? Easy – in eighteen hours I had all the current information. He took a Pontiac to New Jersey, by the way.

• I wanted to buy some T-shirts advertised in a magazine called The New Yorker, but the magazine would not ship overseas. Easyish. In three days I had found Lee Knight who generously agreed to handle the purchase and ship the T-shirts. They have since arrived.

• Struck down by insomnia at three in the morning, I dialled up and spent a fascinating half hour typing back and forth, real time, with a retired US Air Force Colonel on, among other things, the role of the Mitchell bomber toward the end of the Second World War. I have an invitation to visit him in Oregon if ever I am in the vicinity.

• A friend was racking her brains trying to remember the name of a movie. She could recall only the name of the character, "Bree Daniels". Easy. I soon had all the lead actors including Jane Fonda and Donald Sutherland, the main characters, the crew, the director, editor and so on, and a two page review. The film was "Klute" and the review was most complimentary. (See screen dumps 2)

• I developed a bug with Word 4 and had the contents of an important document mysteriously disappear. Easily fixed with fast, free, expert advice. Read on for a verbatim account of this incident.

If you are into having knowledge and power at your fingertips, check out CompuServe. All the above is there now and growing faster and fatter by the day.
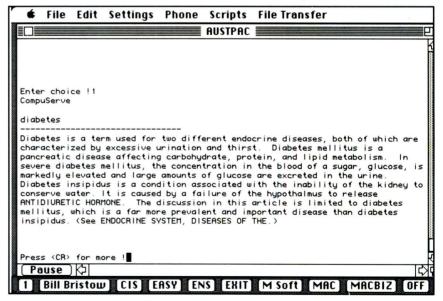
PAD POWER

Bill Bristow

What is CompuServe?
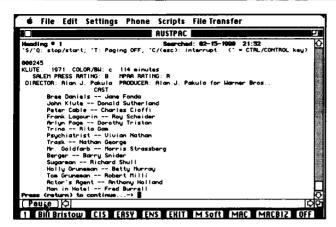
CompuServe, based in Columbus, Ohio is a privately owned information management system. It acts as a host to its own databases, to numerous user groups and as a switching centre to connect its members to databases across the US.

"One moment please. . ." it says and in three seconds connects you to the Grolier on-line encyclopedia in New York, or "One moment please. . ." and over to Pasadena, California to search the massive Magill's movie database or another moment across the country again to interrogate an enormous new medical database.
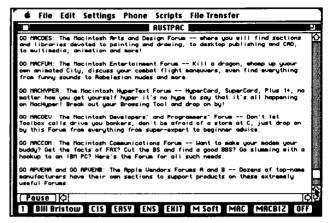
Within the system itself is a mass of information and attractions; the weather everywhere; aviation forecasts; shopping centres; user groups and bulletin boards of every colour and

```
  File  Edit  Settings  Phone  Scripts  File Transfer
═══════════════════════ AUSTPAC ═══════════════════════




Enter choice !1
CompuServe

diabetes
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Diabetes is a term used for two different endocrine diseases, both of which are
characterized by excessive urination and thirst.  Diabetes mellitus is a
pancreatic disease affecting carbohydrate, protein, and lipid metabolism.  In
severe diabetes mellitus, the concentration in the blood of a sugar, glucose, is
markedly elevated and large amounts of glucose are excreted in the urine.
Diabetes insipidus is a condition associated with the inability of the kidney to
conserve water.  It is caused by a failure of the hypothalmus to release
ANTIDIURETIC HORMONE.  The discussion in this article is limited to diabetes
mellitus, which is a far more prevalent and important disease than diabetes
insipidus. (See ENDOCRINE SYSTEM, DISEASES OF THE.)



Press <CR> for more !
( Pause )
  1  [ Bill Bristow ] [ CIS ] [ EASY ] [ ENS ] [ EXIT ] [ M Soft ] [ MAC ] [ MACBIZ ] [ OFF ]
```

Type in your "Search Term" and Grolier's on-line encyclopedia produces current information in seconds. Membership costs $6 per month. The software in use is MicroPhone and across the bottom of the screen are a number of buttons which activate the writer's "scripts".

Magill's movie database is one of the fascinating places to GO on the mighty CompuServe.

Partial list of CompuServe's Macintosh related, user forums.

creed; news services you can program to collect news wire stories to your own specifications; games galore; a so called CB (citizens band) forum where you can chat (type) real time with other members from all over the world – and more.

When you join CompuServe you receive, among other things, a ten page list of all the places you can "GO" on CompuServe.

Big and getting bigger.

When I first joined, there was one Macintosh user forum, MAUG (Macintosh User Group). There are now eleven. These groups are specifically directed to Mac user special interest areas like HyperCard, application development, CAD, communications, productivity and more. (See screen dump 3 for a partial)

Each forum is organised identically, allowing users access to an active bulletin board where you follow and/or contribute to question and answer "threads" on any and every subject; conference areas for on-line group conversation; a notice board for news, and a series of libraries containing public domain and freeware items of every imaginable sort.

Joining a forum is free and instant – simply type your name – and you have immediate access to all forum functions.

To an Australian Mac user who needs technical advice or software support from time to time, these user forums hold enormous power. Questions left on bulletin boards addressed to "All" frequently receive the most expert answers available; answers often come from members of the team who developed the software in question. These experts browse the bulletin boards all the time, searching for key words in their special interest areas.

If I have a question to ask, I pre-type it using a text editor such as TeachText and then upload to the most suitable Mac user bulletin board. Questions left in the Australian afternoon normally have answers by eleven the following morning.

Getting a solution fast

In the midst of trying to Save some formatting changes to an important, ten page document, my secretary was informed, "File not found". Oh oh and bye bye to the document. Word 4 promptly renamed the document "Untitled 1" and then refused to save it. She finally Quit back to the desktop and found the document still there with its original name and 29Kb of data. On opening it there was nothing – not a character to be seen. Help!

Before going home I put a message on the Macpro (Mac Productivity) bulletin boards telling my tale of woe and requesting advice. In the morning I dialled up again and found four replies including the following:

From Lofty Becker:
"Copy the mystery document to a floppy and work on a machine other than your secretary's.

Using ResEdit, change the file type to TEXT (use "Get Info" on the file) and see if you can read it into Word. With a little luck your text will be there but there may be a lot of junk you'll have to edit out, and you'll have to reformat."

From Jim Robertson:
"If you have a number of 'Untitled' or unidentified 'Word Temp' files and don't know which one is your lost document, try this. Put all the unidentified docs on a floppy and use Gofer to search for a key text string. That will tell you which file to massage with a text editor. By the way, if you have DiskTop you can change the file type to TEXT using it, then open it with Word or a simple text editor like MockWrite."
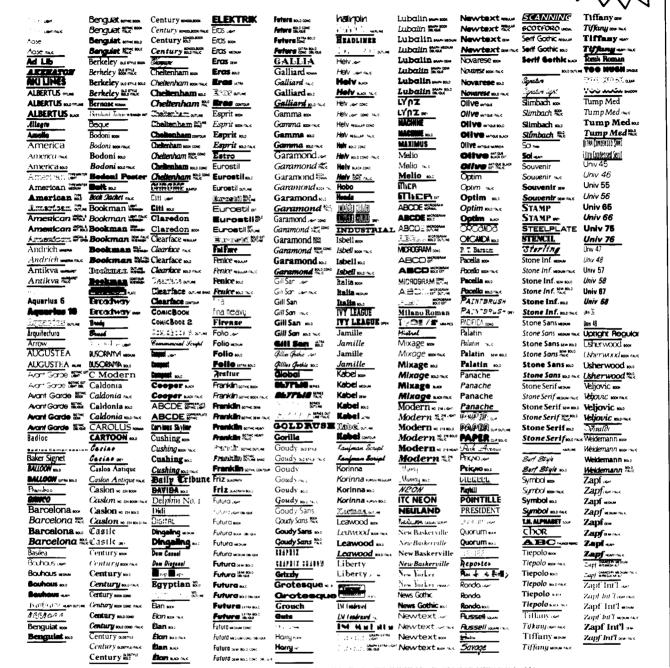
Bingo!

Changing the file type to TEXT worked like a charm and the precious pages of hard work were back in the land of the living together with, as suggested by Lofty, a bit of Word 4's formatting "junk".

How to get to CompuServe

Getting there is not half the fun but it is impressive. Switch on the modem, double click the document you have already set up in Red Ryder or MicroPhone (Both programs come with default macros to set up auto log

in - Ed) Within 55 seconds you are looking for mail in your electronic mail box in good old Ohio.

No, we are not talking ISD telephone charges. There are better, faster and cheaper ways to the US using packet switching, satellite communications systems such as Austpac, Data Access, Infolink and Infonet, to name the main players.

You access these systems by dialling their PAD; an acronym for Packet Assembler/Disassembler. And that's exactly what they do. They take outgoing data transmissions, assemble them into packets, transmit each packet in a single burst, check for errors, then receive a packet back, disassemble it, and so on. (All this could be another case of comms gurus muddying the waters. If you do not understand any of this, do not worry, you never really need to know it - Ed)

A packet is considered full and sent if one of two events occurs. Either a carriage return is keyed by the user or 64 characters are sent – whichever happens first. These packets are counted by the system for costing purposes. 1,000 packets represents one kilosegment. Cost per kilosegment is discussed soon.

Satellite Service	Joining Fee	Monthly Fee	Connect Charge	Data Transfer Fee	Average Call
Data Access	None	None	$22/hour	$11/kilosegment	$6.51
Austpac	$65	$5.80	$10.80/hour	$11/kilosegment	$5.02
Infolink	$75	None	$15/hour	$1.28/kilosegment	$2.16

Satellite switching services employ different charging methods. Data Access (OTC) might be the beginner's best choice as it has no joining fee.

How to get involved

CompuServe costs about $60 to join and $8 per hour to use.

To join, phone CompuServe direct on 0011 1 614 457 8600, or MacWarehouse on 0011 1 201 367 0440, or Computer Ware on 0011 1 415 496 1003 with credit card handy. A call before 9 in the morning (Tues. – Sat.) should get any of them. You will receive a huge parcel containing all sorts of informative and instructive literature at the very bottom of which will be hidden, secured by a tamper proof seal, your user identification number and a password for initial connection.
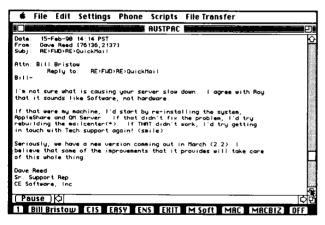
While you wait for your CompuServe connection to arrive you should join a satellite switching service here.

Austpac, Infolink and Infonet all charge a joining fee so my advice to a beginner would be to start with OTC's
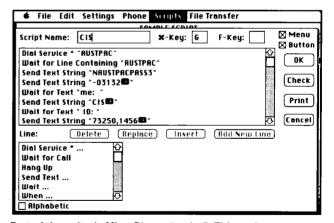
Data Access which is free to join. Although Data Access costs more to use it does offer the chance to try the service on a "suck-it-and-see" basis. If you start to regularly use CompuServe or the other systems that will become available to you, then the economics might lead you to one of the alternatives.

The following chart gives an outline of the satellite service costs involved, including an "average call" cost based on an eight minute call with transmission of 13,000 characters of information. The "average call" cost is an approximation only; there are some technical variables which, in skilled hands, can reduce this cost by as much as 30 per cent. But for the average user making mixed demands on the system, these costs will be close.

Although Infolink looks like a clear winner, each system offers a price advantage depending on user demands.

A recent question seeking advice on a QuickMail speed problem produced this reply within 24 hours, directly from the CE Software support group.

Part of the writer's MicroPhone "script". This script completely automates the connection to CompuServe and hands back control to the user in CompuServe's electronic mail section.
It dials Austpac, handshakes with password, dials the US packet switching address (03132), connects to CompuServe (CIS), logs on to CompuServe with user ID and password then requests access to the Easyplex electronic mail system (GO EASY). This all happens with a double click at the Finder level and takes less than a minute on average.

The occasional user or beginner will win with Data Access because there is no joining or monthly fee. Austpac would perhaps suit the user who burns time but does not have high demands for character transmissions. For the user downloading or uploading large amounts of data, Infolink is obviously the best buy.

So what is the reality of using CompuServe?

I use MicroPhone software and have it well automated. I type my questions in advance and avoid the time spent typing on-line, and find that I can get in and out of CompuServe in one minute on most minor question-and-answer missions. This costs a dollar in very round terms.

The bulletin board question concerning my corrupted Word document took less than one minute connect time to place ("upload" in the jargon) and another minute the following morning to capture the

replies. MicroPhone captures to a "Word" file (or any other word processor you specify - Ed) so that you can read/print messages off-line (meaning free) later.

The future

I used to think that the future held in store a big, fat CD-ROM with the entire knowledge of the world sitting on it; everything from the humble quark to the bottom of the farthest black hole. I'm now betting on a global telecommunications network in the CompuServe mould. Databases, like knowledge, cannot stand still. They require constant feeding and do not rightfully belong on something as static as CD-ROM.

Modems may soon be built into all computers (or alternatively all phone lines will handle data as well as voice with ISDN) and will be used to connect, real time, to communications and data sources anywhere and

everywhere in the world.

Where is Australia at the moment in all this? Nowhere I'm afraid. We have been struggling along with the horse and buggy (no pun intended) Viatel system that is really designed to cope with the lowest common denominator technologically, the push button telephone. Viatel has now been renamed Discovery 40, a move which has done nothing to improve its clunky speed and 40 character-per-line presentation, and is being replaced, in a sort of overtaking manoeuvre, by Discovery 80, with 80 character-per-line presentation and a potential 2400/2400 baud speed.

Down the track, Discovery 80 will probably act as Australia's CompuServe equivalent but I wouldn't hold your breath. Good old Yankee know-how and the power of private enterprise have a five year jump on us. **MAC**

Micros
The fastest route f

File Edit View Special

Send Message

To
✓ **PETER COHEN**
▣ **TOM CORDNER**
✓ **GARY GIGOT**
▣ **MARY FREEMAN**
▣ **JOAN MCARTHUR**
✓ **KATHY WINDLEY**

Microsoft M

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TO: Research Group.
    Client needs our proposal immediately (wl
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POWER

The new Macintosh IIfx: Apple Computer unveils the swiftest and costliest Mac yet

WHERE MAC NEEDS IT

By Jim Heid
US *Macworld*

Who needs an expensive, fast Macintosh?

Miscellaneous snippets gathered from the Australian press conference:

(1) the "fx" in "Mac IIfx" stands for "fast expandable";

(2) a new Extended Keyboard was also announced, at the same price as the old, but labelled "ergonomic". A touch of hyperbole there, as the modifications are confined to providing a slide lever to adjust the angle of the keyboard and a template to label the 15 function keys plus six special screen-editing keys;

(3) a new System software version 6.05 ships with the IIfx, and is recommended for use also with the Mac IIci, the Macintosh Portable, or for users of 32-bit QuickDraw. It is required for the IIfx or the new video display cards, and any third-party hardware and software which is so labelled in its packaging. System 6.05 can only be installed after removing any virus detection and/or security software from the System Folder. They may safely be re-installed afterwards.

(4) A/UX 2.0: this is a major announcement. Apple has finally produced a Unix with a Macintosh face, and boy, does it make a difference! Technically and in user terms, this is such a breakthrough (imagine true multitasking from a Macintosh desktop) that Apple executives were at pains to emphasise that A/UX is "not a replacement for the Mac OS". Phil Cookson, the UNIX marketing manager of Apple, mentioned one of the more convoluted opportunities now open to a Mac user: while running A/UX, and hence Unix, and at the same time the standard Mac OS, the user could simultaneously run MS-DOS in a window, with the aid of a DOS emulator such as SoftPC, which is available both under Unix and for Mac. Does anybody really need more choice than that? The only "operating systems war" remaining would now take place on one and the same desktop – a civil war, really. See Macworld View for a brief description.

Commentary:

Wouldn't life be boring if all people agreed? This time, we concur totally with Jim Heid's description of the new Macintosh, but disagree with some of his conclusions.

First, we are sure that "all the world" waits for a low cost Mac, but a great slice of that world also pines for a faster Macintosh. We have the qualified pleasure of building this magazine entirely using Macintosh page layout and graphics software, and believe me: like thousands of Macintosh graphics artists and desktop publishers, we spend a lot of time waiting – for pages to scroll, graphics to redraw, page previews to build, and printers to get off the mark. The IIfx is our baby.

A case in point: in the afternoon following Apple's press briefing, we went back to the office to annotate our cover shot from the interior view of the IIfx which was prepared in Aldus Freehand by Arne Hurty; you can see his drawing on pages 56 and 57. On a

While the world waits for a low-cost Mac that's faster than a Plus or SE, Apple continues to aim its engineering prowess at the high end of the market. The latest member of an increasingly elitist product line is the Macintosh IIfx, an engineering tour de force that combines a fast clock rate, an exotic memory design, and specialised coprocessors to leave every other Mac in the dust. The IIfx almost deserves the name Macintosh III – it's as technologically superior to the rest of the Mac line as the Mac II was to its predecessors.

The new machine is also a bellwether. According to Apple, some of the IIfx's technology will eventually surface in other Mac models. Perhaps one of them won't require four-year financing: the IIfx is priced from $A13,995 to $A16,995 inc tax.

The IIfx's performance and price send some messages about the Mac's future and the markets Apple wants to serve. The IIfx also raises questions about the viability of the Mac IIci, which is much slower, but not much cheaper. What's more, some of the IIfx's technology isn't fully exploited by the Mac's current system software, or even by the forthcoming System 7.0. Apple has created a machine for the future — but hopes you will buy it now.

We will address those issues, but first, let's kick the tyres and open the bonnet. What follows is based on a day-long press briefing with Apple product managers and engineers. Apple also showed three new video boards (see "Apple's New Video Boards") and version 2.0 of A/UX, Apple's version of the UNIX operating system.

It's no subcompact

The IIfx's looks belie its nimble performance. The machine uses the bulky Mac IIx case, whose side-panel ventilation slots prohibit it from sitting vertically on the floor unless you use special brackets such as Kensington's Macintosh II Stand. The smaller Mac IIcx and IIci are designed to operate vertically or horizontally.

Like the II and IIx, the IIfx accommodates up to two SuperDrives and one half-height, 5 1/4inch hard disk. (The IIfx will be available with no hard disk, with one 80Mb hard disk, or with one 160Mb hard disk.) On the back of the case are two serial ports, two Apple Desktop Bus (ADB) ports, a SCSI connector, and a stereo sound jack.

The family resemblance continues inside the case. The IIfx uses the same, 230-watt power supply as the IIx, but a larger, variable-speed fan cools things more quietly. The internal floppy and hard disk drives mount on the same bracket that holds them in a IIx. That means some extra effort for service technicians, who must unscrew the bracket and remove the drives to fully access the machine's main logic board.

Chairman of the boards

The IIfx's logic board is the same size as the IIx's, but thanks to seven new Apple-designed chips, the board contains fewer components. For all its extra punch, the IIfx has about the same number of chips as the IIci.

Presiding over this snazzy silicon is a 68030 CPU running at a sizzling 40MHz clock rate – 500 per cent faster than the SE's clock rate, and 60 per cent faster than the IIci's. As in the IIci, the IIfx implements the 68030's burst mode, allowing the Mac's Toolbox routines to transfer large blocks of data quickly. The 68882 floating-point maths coprocessor also runs at 40MHz.

40MHz isn't the fastest clock rate in the Mac world; some Mac II accelerator boards use a 50MHz metronome. But thanks to some performance-tuning techniques we will examine shortly, the IIfx still outruns a Mac equipped with a 50MHz accelerator (see "Speed Tests: IIfx at a Blur"). Apple's engineers have demonstrated once again that balancing performance across a machine's architecture yields a more significant improvement than just boosting the clock speed of the central processor.

The IIfx logic board contains six NuBus slots, clocked at the same 10MHz NuBus rate used by other Mac IIs. Some hardware manufacturers might be

From the Australian launch: *By Osmund Iversen and Tony Williams*

Macintosh IIcx, an enviable computer by most people's expectations, attached to a 19in RasterOps colour monitor, viewing and scrolling this drawing was a tiresome task. A couple of minutes to redraw each time we scrolled, a minute or two for each preview – it took us 25 minutes of working time to get the information we needed from a single drawing. And we were only studying the drawing, not altering it. Did we pray for a "low-end Mac"? Don't bet on it.

The IIfx may be for CAD and engineering people, but they will not find it exceptional in performance compared with dedicated processors. On the other hand, artists, presenters, DTP and publishing houses will. For them, Apple's philosophy of accelerating general graphics performance pays off.

Take heed when Jim says that the new video cards, available for all type II Macs, are a significant release. Certainly, the graphics accelerator could rejuvenate many an old work horse Mac.

Tony Fraser, the new marketing director of Apple Australia, referred to the "perception that Apple's differentiation is eroding in the market", but countered with the argument that no one else offers a "Balanced System Architecture", more than ever in evidence in the Mac IIfx. When a single company can own all the technology, it can provide optimisation for the user which is planned for and implemented at each stage.

In evidence, he showed a filmed "speed" comparison between a Compaq 386 with the optional maths coprocessor [...] Mac IIfx calculating an Excel spread[sheet...] penalty just – even though it [...] developed (Mi[...] created the original [...] DOS [...] microsoft [...] (Windows) [...]

Jim Heid positions the IIfx as appropriate for video production, 3-D graphics rendering, CAD, animation, 24-bit image processing and digital audio processing". We believe it is only just good enough for those jobs. It is, on the other hand, exceptionally good at far more everyday work needs, satisfying the basic ergonomic requirement that a person should not have to wait for the computer. Those who ridicule fast computers don't understand human beings. Mac IIfx is an expensive computer, not an elite computer. The only thing stopping you from buying this computer today would be the price.

John Sculley, during his recent visit to Australia, spoke of the importance of "empowering the individual"; Tony Fraser called it "The Apple Difference". We agree.

What Makes the IIfx Run So Fast?

Seven Key Performance Improvements

Many components work together to make the Mac IIfx the fastest Mac yet. Here are the seven most important speed tricks employed by the IIfx. Each relates to components on the IIfx's digital board.

———— Data pathway -------→ Data ✦ ——→ Instruction

1 I/O Processors

In other Macs, the CPU is intimately involved in accessing floppy disks, ADB devices, and serial devices. For example, to read incoming AppleTalk data from a serial port, the CPU initiates (A) the receipt via the serial communications controller. The SCC repackages (B) the data for the CPU, which stores (C) the data in RAM. Due to Apple-Talk's timing requirements, the CPU must shut itself off for 20 milliseconds for each packet.

In the IIfx, the CPU directs (D) the serial IOP to initiate (E) the receipt of AppleTalk data via the SCC. The SCC repackages the data (F) for the IOP. The IOP stores the data (G) in its own 32K memory buffer and notifies (H) the CPU that data is waiting in the buffer. When the CPU is ready, it retrieves the data (I) from the IOP's buffer and stores it in RAM (J). This frees the CPU to perform other tasks.

2 SCSI/DMA

In other Macs, the CPU establishes (A) communications with a SCSI device via the SCSI controller. Next, the CPU reads (B) the incoming data and stores (C) it in memory. The CPU often must wait while data is being accessed on a hard disk and transferred across the SCSI bus to the controller. When the CPU isn't waiting, it's actively involved in the data transfer, making sure each byte arrives at its destination.

In the IIfx, the CPU instructs (D) the SCSI/DMA to establish communications (E) with the SCSI device and to transfer (F) the incoming data directly from the SCSI bus into RAM. The CPU is then free to move on to other tasks.

5 Fast Bus, Slow Bus

Slower components use a slow bus, while quick components use a faster bus. Specialized buffers transfer information between the two buses.
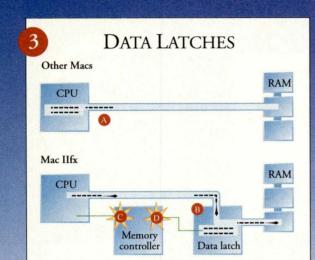
6 Static Ram Cache

A fast new cache saves the CPU from retrieving recently used data and instructions from slower RAM chips.

7 Faster Processors

Both the 68030 CPU and the 68882 FPU now operate at 40MHz—a much faster clock rate than previous Macs.
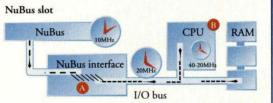
Arne Hurty © 1990 Macworld Communications, Inc.

③ DATA LATCHES

Other Macs

CPU —— A —— RAM

Mac IIfx

CPU — C D — B — RAM
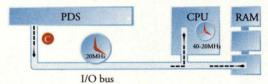Memory controller — Data latch

In other Macs, RAM operates at a slower speed than the CPU. To overcome this incompatibility, the CPU sends information (A) only when RAM is ready to receive it. The process of sending data (which includes waiting to send data) prevents the CPU from doing any other work: reading data from the static RAM cache, I/O bus, or ROM.

In the IIfx, when the CPU writes to RAM, the data is intercepted (B) by a high-speed data latch. The memory controller immediately tells (C) the CPU that the write is completed, thus freeing the CPU to move on to other tasks. The memory controller synchronizes (D) the transfer of data from the latches to RAM.

④ PROCESSOR DIRECT SLOT

NuBus slot

NuBus — 10MHz — CPU B — RAM
NuBus interface — 20MHz — 40-20MHz
A
I/O bus

Processor Direct Slot

PDS — CPU — RAM
C — 20MHz — 40-20MHz
I/O bus
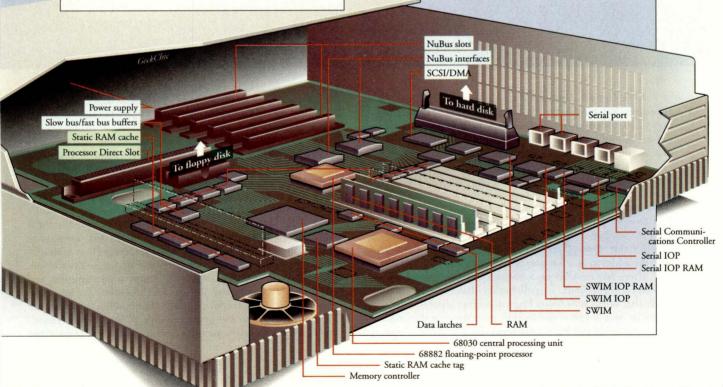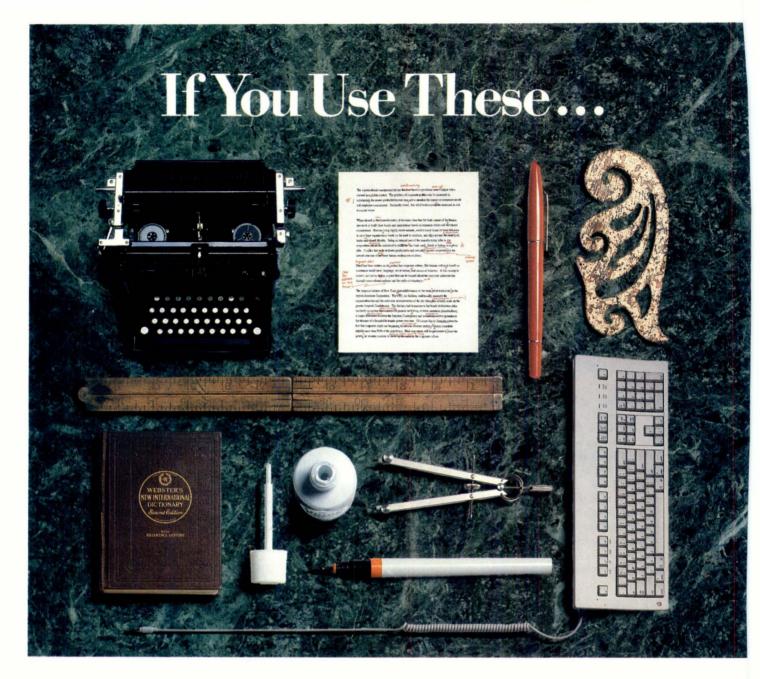
Data transfers directly between NuBus boards and the CPU or RAM must undergo a timing resynchronization process (A) from 10MHz to the 20MHz rate of the I/O bus. (The CPU slows down (B) to accommodate the 20MHz clock rate of the I/O bus.) This process results in a delay that limits the speed of the data transfer, especially with random-access data transfers such as those used by video boards. The IIfx's Processor Direct Slot operates (C) on the 20MHz input/output bus, so it doesn't require a timing conversion.

NuBus slots
NuBus interfaces
SCSI/DMA
To hard disk
Serial port
Power supply
Slow bus/fast bus buffers
Static RAM cache
Processor Direct Slot
To floppy disk
Serial Communications Controller
Serial IOP
Serial IOP RAM
SWIM IOP RAM
SWIM IOP
SWIM
Data latches
RAM
68030 central processing unit
68882 floating-point processor
Static RAM cache tag
Memory controller

If You Use These...

Let's face it. Although Caere® nearly eliminated EKS (Excessive Key Strokes*) with the introduction of **OmniPage**,™ there are still businesses out there who continue to use slightly *outmoded tools*, seriously limiting the power of their MS-DOS® and Macintosh® computers. Sound familiar?

Now there's a choice. You can enter data using these artifacts of the past, or choose **OmniPage** – which allows you to enter hundreds of pages of data quickly and easily – up to 1500 words per minute. And all for significantly less money than you ever thought possible. You can *choose* **OmniPage**, or learn to type 25 words per second. And if that doesn't convince you, consider this: **OmniPage** has just gotten even more powerful, with the addition of a few new family members.

Caere has never been a company to mince words so we developed **OmniSpell**,™ a spellchecker that contains 100,000 words that works with **OmniPage** to correct all of the spelling errors in your scanned documents, even those in the original work – going beyond 100% page recognition to deliver the most accurate scanned text. Working with **OmniPage's** Transitional Editor,™ **OmniSpell** is the only spellchecker designed specifically to work with OCR** software.

With **OmniDraft**,™ draft mode documents don't have to come out looking like electronic alphabet soup. At last, page recognition software that can read output from dot matrix printers – in an instant.

Not to be outdone by other prominent family members, **OmniProof**™ makes the differences *perfectly clear*, by providing side-by-side comparisons of your most critical documents. **OmniProof** works exceptionally well for anyone developing lengthy desktop published documents or manuals. Even opposing attorneys will have little opposition to the way that **OmniProof** allows them to review legal contracts and documents. **OmniProof**, the one tool to ensure the best final outcome, no matter what side of the bar you happen to be on!

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disappointed that Apple didn't boost the NuBus's clock rate; the 10MHz rate can be a bottleneck for boards that work with vast amounts of data, such as digital signal processors and 24-bit video boards. Apple says a faster NuBus will have to wait until after the NuBus standards committee releases its NuBus 90 specification, which allows for a 20MHz clock rate.

To accommodate performance-intensive expansion boards, the IIfx provides a 120-pin Processor Direct Slot (PDS) that provides direct access to the CPU bus and is clocked at 20MHz (see "What Makes the IIfx Run So Fast?"). The IIfx's PDS includes the same features as the SE/30, plus more; the primary difference is that the IIfx's slot is connected in line with the NuBus slots and is supported by the IIfx's Slot Manager. When you plug a board into the PDS, the IIfx's ROM maps the PDS board into what was previously NuBus address space. Thus, a PDS board designed for the IIfx can, like a NuBus board, be self-configuring: it can have a declaration ROM that contains information about the board, as well as driver software that the Mac's Slot Manager can load during start-up. As for existing PDS boards, Apple says many should work in the IIfx, provided they fit within the case. Boards designed for the IIfx's PDS can be as big as NuBus boards – roughly 4 by 12 inches.

In the Mac IIci, the PDS can accommodate an optional cache memory board, which boosts performance by providing a small amount (usually 32K) of fast static RAM that holds data likely to be required by the CPU. In the IIfx, the logic board contains a 32K static RAM cache that is fine-tuned to work with the IIfx's sophisticated memory subsystem.

Extra memory lanes

Like the IIci, the IIfx requires dynamic RAM (DRAM) chips with an 80-nanosecond access time, mounted on Single In-line Memory Modules (SIMMs). A parity memory option is also available. There, the similarities end. The IIfx's minimum memory configuration is 4Mb, expandable in one leap to 8Mb; other Macintoshes include just 1Mb of RAM, which you can expand in smaller increments. As 4Mbit and 16Mbit DRAM chips become available, the IIfx main logic board will

be able to hold up to 32Mb and 128Mb, respectively.

The SIMMs themselves are different, too. They contain separate input and output lines, which work together with the IIfx's custom memory controller chip to allow data to be written to and read from memory simultaneously (see "What Makes the IIfx Run So Fast?"). Initially, Apple will be the only source for IIfx SIMMs. Eventually other companies will offer SIMMs for the machine, but they are likely to cost more than those for other Macs. (Sensing possible confusion, we checked this with Apple Computer Australia, and also with an independent technician. To make it absolutely clear, these are not "Apple-proprietary" SIMMs, but standard 64-line SIMMs. Earlier Macs used 32-line SIMMs, but both types are amply available on the chip market, so there is no fear of vendors extracting premium prices. Apple Computer only claims patents to the memory management system to run its DRAM – Ed.)

According to Apple, the IIfx's memory subsystem allows 96 per cent of all RAM accesses to occur with no wait states, as opposed to the two wait states in the Mac II and IIx. In English: the IIfx's CPU almost never has to wait to get the data it needs.

As for ROM, the IIfx contains 512K of it, mounted on a SIMM. The IIfx's ROM chips are similar to the IIci's. They contain Apple's 32-bit QuickDraw software, and they're "32-bit clean": they follow Apple's latest memory-management guidelines and will be able to access up to 4 gigabytes of memory under System 7.0.

Lightening the CPU's load

In most Macs, the CPU handles low-level input/output (I/O) tasks such as accessing SCSI devices, floppy drives, modems, LocalTalk networks, and printers. In the IIfx, three custom chips handle this grunt work and free the CPU for more important jobs.

The SCSI/DMA Controller chip lets the IIfx communicate with SCSI devices using direct-memory access (DMA), in which data is transferred between an I/O device and memory without involving the CPU in every step of the process. DMA is common in high-performance computers, but this marks the first time Apple has built it into a

Mac, although a few third-party vendors have offered products with DMA.

In theory, the IIfx's SCSI/DMA Controller can boost the machine's SCSI data-transfer rate to a maximum of 3Mb per second, versus the roughly 1.5Mb-per-second transfer rate of other Mac IIs. In practice, the actual transfer rate depends on what SCSI devices are connected to the machine. Few hard disks, for example, can transfer more than 2Mb per second. Still, Apple engineers say you are likely to see a performance improvement, especially with fast hard disks.

> **" If you need blistering speed and have deep enough pockets to consider the IIci, choose the IIfx instead "**
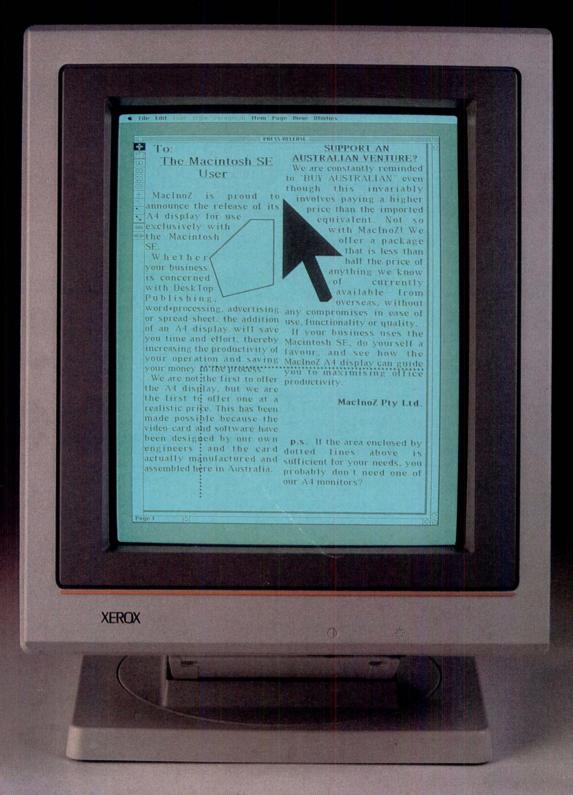
A more significant speed advantage can surface when multiple SCSI devices – several hard disks, or a hard disk, scanner, and tape backup – are connected to the bus. The faster transfer rate allows each device to do its work more quickly, freeing up the bus for other devices to use. Also, the SCSI/DMA chip, not the ROM-based SCSI Manager, handles the SCSI bus arbitration phase (the task of granting access to one device when several are vying for the bus). Thus, bus conflicts are resolved more quickly and without the CPU's intervention.

The DMA controller also allows for more concurrency in the A/UX operating system. A/UX can initiate a SCSI data transfer and then switch to a different task while the transfer takes place in the background. This degree of concurrency is not available to most Macintosh users because the Macintosh Operating System does not adequately control the allocation of processing time among multiple tasks. One IIfx engineer described the IIfx's I/O coprocessors as "architectural stakes in the ground that System 7.0 and beyond are cognisant of and are going to take further advantage of".

The serial ports and floppy drives use their own I/O coprocessors, called I/O Processors (IOPs). In the IIfx, one

Apple's new video boards

The IIfx is the hot new star of the Macintosh line, but Apple's three new video boards – the Macintosh Display Card 4•8, the Macintosh Display Card 8•24, and the Macintosh Display Card 8•24 GC – may have a larger impact on the Mac world. For one thing, they work on all members of the Mac II family. For another, they represent Apple's push toward 24-bit colour as a standard, not a luxury. And with their video equipment compatibility, these boards will help the Mac make further inroads into the television world.

The 4•8, 8•24, and GC boards replace all other Apple video boards, except for the $295 monochrome (1-bit) video board. The new boards sense which Apple monitor you are using and configure themselves automatically. Apple says the boards should work with multiscanning monitors when used with a cable designed for the video boards.

For television applications, all three new boards support NTSC video output, although the 4•8 and 8•24 will need a special cable that merges the red, green, and blue signals into a composite video signal. (At the time of writing, we were trying to get answers from Apple regarding PAL capabilities. What we have unravelled so far is that the video output supported is RS-343 using RS-170 timing standards – by next month, hopefully someone can tell us how far that gets us in Australia – Ed). To improve image quality and eliminate flicker, all three boards use a patented technique called Apple Convolution, in which each scan line is evaluated and averaged with lines adjacent to it. Because of the extra memory required for the convolution

algorithm, the GC and the 8•24 support only 256 colours when outputting interlaced video.

The 4•8 board displays up to 256 colours on Apple's colour monitors and up to 16 grey levels on Apple's monochrome monitors. The 8•24 supports up to 256 grey levels on Apple's monochrome monitors, and up to 16.7 million colours on Apple's colour monitors. The 4•8 is priced at $1,195 and the 8•24 at $1,695. An upgrade VRAM kit which expands the 4•8 into a 8•24 board will cost $595.

The GC board provides 24-bit colour with a twist: speed. Thanks to the GC's dedicated graphics processor (an American Micro Devices 29000 running at 30MHz), true-colour images snap into view instead of oozing onto the screen. Scrolling a 24-bit image with the GC is faster than scrolling an 8-bit image with Apple's original Macintosh II High-Resolution Display Video Card (see "Speed Tests: IIfx at a Blur").

Thanks to its support of NuBus block transfers in both master and slave modes, the Macintosh Display Card GC will also boost the performance of the 4•8 and the 8•24 video boards. (The 4•8 and 8•24 boards support block transfers in slave mode only.) Apple says the GC will also improve the performance of other video boards you may have installed, especially if the boards support NuBus block transfers.

A 2Mb DRAM upgrade will be available for the GC, which will boost its DRAM to 4Mb for a cost of $895, and in further increments up to a maximum of 8Mb. The extra RAM can be used by applications that create off-screen bitmaps (most graphics-intensive programs do).

Apple says programs that use standard 32-bit QuickDraw routines will automatically take advantage of the extra 2Mb when it's installed.
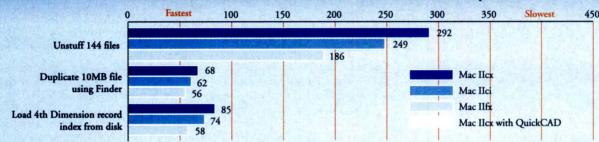
The GC board provides general-purpose graphics acceleration. It won't cut the time required to render a complex, ray-traced image, although it will display the final product faster. Nor is the GC optimised for vector (object-oriented) drawing. If the only colour application you use is a CAD program such as AutoCAD, you might be better served by a product such as RasterOps' QuickCAD board. Apple is betting – and probably correctly – that most people will be more interested in a graphics accelerator that provides faster performance for all applications instead of just one. The Macintosh Display Card GC generalist approach is similar to that of SuperMac's Spectrum/24 Series III, although Apple says the GC accelerates QuickDraw more extensively.

It's important to note that none of the new boards provide 24-bit colour output for 19in monitors. For that, you will still need to turn to third-party video hardware. And while it's commendable that Apple provides an upgrade path from 8-bit to 24-bit colour, it's unfortunate that there's no upgrade from the 8•24 to the GC. (Or indeed, that the Graphics Accelerator could not be sold separately, to boost all video cards – Ed.)
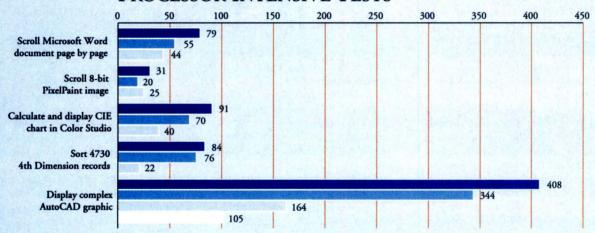
These drawbacks aside, Apple's new video boards are winners. And they put new price and performance pressures on third-party video vendors, who up to now have had the true-colour marketplace all to themselves.
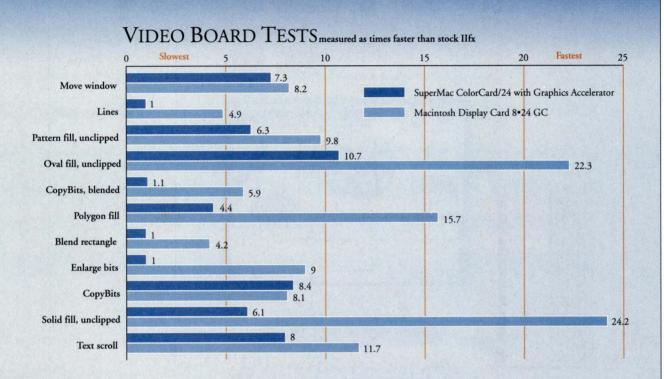
SPEED TESTS: IIFX AT A BLUR

DISK-INTENSIVE TESTS measured in seconds taken to complete task

	Mac IIcx	Mac IIci	Mac IIfx
Unstuff 144 files	292	249	186
Duplicate 10MB file using Finder	68	62	56
Load 4th Dimension record index from disk	85	74	58

Legend: Mac IIcx, Mac IIci, Mac IIfx, Mac IIcx with QuickCAD

PROCESSOR-INTENSIVE TESTS

	Mac IIcx	Mac IIci	Mac IIfx	Mac IIcx with QuickCAD
Scroll Microsoft Word document page by page	79	55	44	
Scroll 8-bit PixelPaint image	31	20	25	
Calculate and display CIE chart in Color Studio	91	70	40	
Sort 4730 4th Dimension records	84	76	22	
Display complex AutoCAD graphic	408	344	164	105

To test the IIfx's performance, Macworld Labs ran seven benchmark tests on a prototype IIfx, a IIci, and a IIcx, all equipped with 8MB of memory, a fast 100MB hard disk, and 8-bit video hardware configured to display 256 colors. All tests were performed with MultiFinder disabled using a prerelease version of System 6.0.5 and Finder 6.1.4. The machines' RAM caches were set to 128K, and the IIci didn't contain a cache memory board.

The five processor-intensive tests yielded the most significant speed differences. In more than half of these tests, the IIfx averaged 43 to 71 percent faster than the IIci, and 56 to 73 percent faster than the IIcx. One notable exception: The IIci, with its built-in video circuitry, scrolled an 8-bit PixelPaint image 20 percent faster than the IIfx. This shows that NuBus is a performance bottleneck for video boards. We also ran the AutoCAD test with the Radius QuickCAD board for comparison.

The three disk-intensive tests gauge the performance impact of the IIfx's SCSI/DMA Controller. The IIfx ranged from 10 to 25 percent faster than the IIci, and from 18 to 36 percent faster than the IIcx. This validates Apple's claim that the SCSI/DMA Controller boosts performance with a fast hard disk, even though the Mac's current system software doesn't take full advantage of the new chip's coprocessing capabilities.

VIDEO BOARD TESTS measured as times faster than stock IIfx

Test	Value 1	Value 2
Move window	7.3	8.2
Lines	1	4.9
Pattern fill, unclipped	6.3	9.8
Oval fill, unclipped	10.7	22.3
CopyBits, blended	1.1	5.9
Polygon fill	4.4	15.7
Blend rectangle	1	4.2
Enlarge bits	1	9
CopyBits	8.4	8.1
Solid fill, unclipped	6.1	24.2
Text scroll	8	11.7

Scale: 0 (Slowest) — 5 — 10 — 15 — 20 (Fastest) — 25

Legend:
- SuperMac ColorCard/24 with Graphics Accelerator
- Macintosh Display Card 8•24 GC

To compare the performance of the Macintosh Dis- play Card 8•24 GC with SuperMac's Spectrum/24 with Graphics Accelerator, we placed both boards in 8-bit (256-color) mode and ran an Apple graphics bench- marking utility called GeeBench, written by Jean-Charles Moray, one of the GC's engineers. We used both boards in a prototype IIfx configured as described above. The values reflect the degree of performance improvement over a IIfx without a graphics accelerator.

The results? In nearly every test, the GC performed significantly faster than the SuperMac board. The one exception was the CopyBits test, in which the SuperMac card did slightly better. (QuickDraw's Copy-Bits routine is used extensively by graphics software.)

We didn't test the boards' performance using real applications because Apple was still in the process of optimizing the GC's internal software to work better with specific application programs. Thus, the results would not have applied to the final GC product. What's more, it's likely that some application programs will be modified to take full advantage of the GC. Caveats: These benchmarks were run using prerelease system software and prototype hardware. The performance of the final, off-the-shelf products will probably differ somewhat. Take the video board benchmarks with an especially large grain of salt: they represent theoretical perfor- mance increases, and ones reported by an Apple- authored utility, at that.

Still, it is safe to draw some conclusions: With processor-intensive tasks, the IIfx is generally at least twice as fast as a IIci, and the GC promises to acceler- ate QuickDraw to a greater extent than SuperMac's ColorCard/24 with Graphic Accelerator. However, SuperMac may have an improved board by the time this article is published.

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IOP handles the modem and printer ports and another controls the floppy drives and ADB ports. The IIfx's product manager described each IOP as an Apple IIe on a chip. Each contains the equivalent of a 6502 microprocessor and 32K of static RAM.

The IOPs improve performance in a few ways. The floppy-and-ADB IOP provides track caching for the IIfx's floppy disk drives, making floppies faster. It also monitors the ADB ports and adjusts their priority in relation to the floppy drive. If the IOP detects a great deal of mouse movement or typing, it lowers the priority of the floppy drive to avoid erratic mouse pointer motion or missed keystrokes.

More important, the serial ports' IOP boosts the IIfx's performance at handling packets of AppleTalk data (although it doesn't make LocalTalk any faster). Because of AppleTalk's timing requirements, the CPUs in other Macs are essentially shut off for roughly 20 milliseconds for each packet. In the IIfx, the serial ports' IOP handles AppleTalk communications; the CPU simply reads a waiting packet from the IOP's static RAM buffer, which takes only about one millisecond. Thus, if you are printing to a LaserWriter in the background or someone is accessing your hard disk using TOPS, the currently active application won't slow down as much as it would on other Macs.

Compatibility concerns

You might expect such exotic hardware to have compatibility problems with current Mac applications. Apple reports there are some, but not many. Some copy-protection schemes may fail because of the IOP that handles floppy disk drives. Also, programs that use the serial ports extensively (such as MIDI sequencers) may not run, since they often directly access the Serial Communications Controller (SCC) chip. Apple has supplied application developers with software routines that allow programs to bypass the IOP and access the SCC directly. Given that MIDI programs are among the few that are copy protected these days, it's a safe bet that most will need minor revisions to run on the IIfx.

As for Apple's software, the IIfx will require System 6.0.5, which contains support for the SCSI/DMA Controller and the IOPs. System 6.0.5 will run on all Macs from the Plus through to the IIfx. Finally, a IIfx logic board upgrade will be available in July for the Mac II and IIx; the price was not available at press time.

Can they build one for you?

There you have it – the fastest, most sophisticated Mac yet. So who needs it? Clearly, it's a natural for tasks that demand fast processing of vast amounts of data, such as video production, 3-D graphics rendering, computer-aided design, animation, 24-bit image processing, and digital audio processing. The IIfx's speed and coprocessing capabilities will also appeal to A/UX users. It may find a home in large networks, where it can, Apple says, run Apple's Internet Router software with enough power to spare to serve as a workstation. And speaking of workstations, the IIfx may attract customers who might otherwise buy from Sun Microsystems, NeXT, or Apollo. (Two of the fx's engineers are Apollo alumni.)

The IIfx costs a bundle, but it delivers. Indeed, it may offer more performance for the money than any other Mac. And the MS-DOS and OS/2 world has nothing that compares – especially when you figure the Mac's elegant system software and huge application software base into the equation.

What of the IIci's future? You decide – it's half as fast, and costs a little under $A4,000 less. People who need blistering speed and have deep enough pockets to consider the IIci should choose the IIfx instead, especially given its forward-looking design.
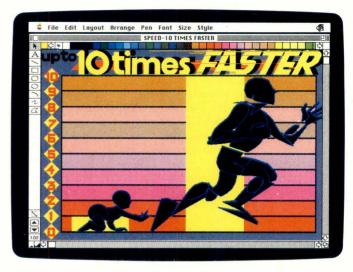
Finally, what about the rest of us – the market the Mac was first designed for? As I drove home from Apple's briefing, a radio report said Apple had announced some layoffs and cost-cutting measures. One analyst said that the firm's lagging sales were due to a lack of attention to the low end of its product line. It was an ironic end to a day filled with cutting-edge, patent-pending technology.
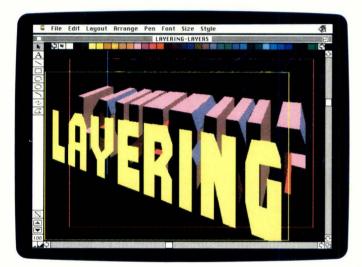
Apple is pushing technology-intensive applications and hardware – hardware that, in Jean-Louis Gassée's words, "makes developers and users drool". That's commendable, but drool doesn't sell machines or pay shareholder's dividends. Perhaps this point has finally sunk in at Apple. In February, as the call from industry analysts for more affordable machines became a roar, several top executive slots were reshuffled and Gassée himself resigned.

Some have joked that Apple keeps introducing faster machines so that it can revise its own corporate organisational charts more quickly. The truth is, Apple's goal for the past few years has been to get more Macintoshes into corporate settings, a strategy that most analysts agree has worked. Now that that's done – and now that Apple has shown its hand at the high end – it's time for it to deliver a faster, more affordable successor to the Plus and SE. **MAC**
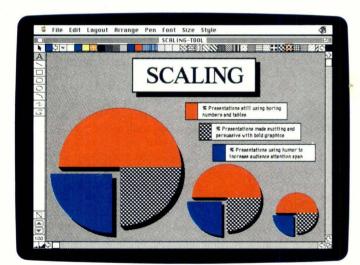

Prices

The Macintosh IIfx series:

Macintosh IIfx basic, with SuperDrive floppy disk and 4Mb RAM	$13,995
4Mb RAM/80Mb internal hard drive version	$15,495
4Mb RAM/160Mb internal hard drive	$16,995

RAM upgrade kits come only in 4Mb chunks, and may be ordered in configurations with and without parity.
Availability: mid-April

The Video Cards:

Macintosh Display Card 4•8, available June	$1,195
Macintosh Display Card 8•24, available April	$1,695
Macintosh Display Card 8•24 GC, available May	$3,295
Macintosh Display Card VRAM Kit, available April	$595
Macintosh Display Card DRAM Kit, available May	$895

All prices are recommended retail inclusive of tax.

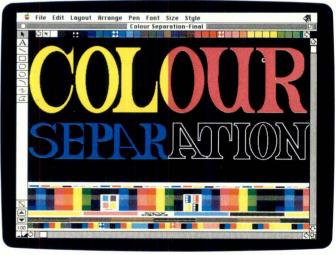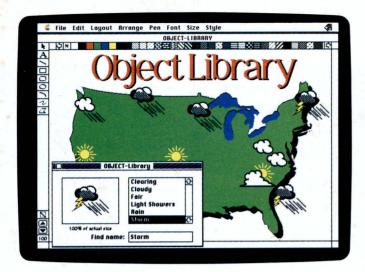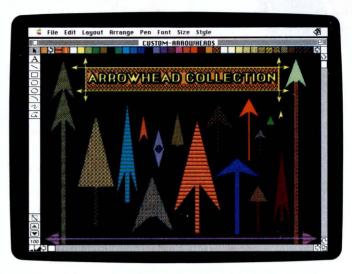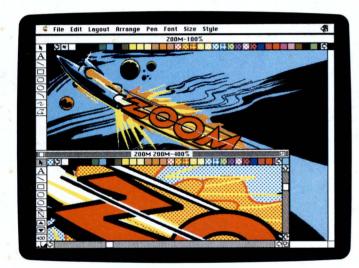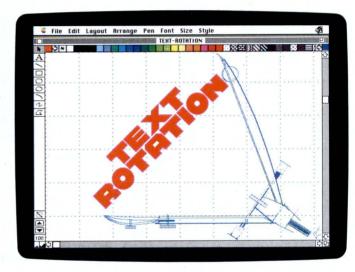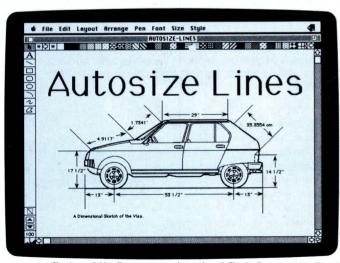# ToffeeMac

*When Apple built the fastest
Mac ever, they did not know
what they were doing – or
indeed, that they had*

By Roy Lind

Discoveries do not have to come from millionaires'
budgets. Newton was bopped on the head with a 10
shilling apple, and discovered gravity. Now, a worker
in Apple's Singapore factory has stumbled upon
superconductivity by spilling toffee into a drum of Mac Plus
motherboards. Fearing the sack because of his negligence, he
did not tell anyone until a month later when customers began
to report fantasy performance from their new Mac Pluses –
now, they call him a hero.

One of these speedsters may be yours, if you took
delivery recently. If it is not, but you are the owner of any
Motorola 68000-based Mac – 128K, 512K, Plus or SE – you
can doctor it yourself to run dramatically faster. In a case of
poetic justice for the original Macintosh enthusiasts, the
solution is not open to owners of Mac II, IIcx and IIci, or
even Apple's latest, the IIfx. For the moment, theirs will be
regarded as low-end Macs.

Below, we'll show you how to enhance your own Mac;
but you would not know *why* it works unless you understand
superconductivity, so bear with us for an explanation first.

Superconductivity

Superconductivity is an elusive phenomenon that has
tied up the best researchers of IBM and Japan Inc for a
decade, but they've enjoyed only modest success. Vastly
simplified, the theoretical base is this: the silicon-based
conductors that make up computer chips can be made to
conduct electrical impulses at a higher speed at low
temperatures.

Trouble is, "low" has meant "freezing, bloody
ridiculously cold". Ideally, it should be absolute zero, or -
273°C. If that temperature is difficult to get a feel for, its
effects are even more bizarre. At absolute zero everything
stops; you could imagine a light beam slowing down, coming
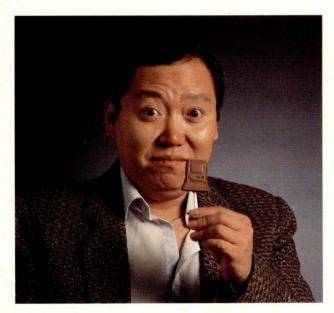
"They say that Mac users are technically naive. Now look who's
laughing! I have the fastest computer in the world, and I built it
myself!" says Joanne Davies, the first Australian to convert her
Macintosh Plus.

to rest on the floor like a drop of water.

We cannot reach absolute zero in laboratories. The best
research so far has only succeeded in moving the target to
within a few degrees above the magic figure. Using heavy-
duty cooling systems based on liquid nitrogen or helium, we
can come close enough to partially exploit the effects of
absolute zero, one of which is superconductivity.

You should not confuse superconductivity with
"supercomputers", those rarefied beasts of a Cray and its
likes, which also happen to be encased in massive liquid-
based cooling systems using helium or nitrogen, but for
different reasons. The cooling system represents the bulk of
the weight in a Cray, for example – without it the rest of the
supercruncher could be built quite tiny. These computers run
so hot with their densely built packs of chips that they stand
the risk of incinerating themselves if the cooling system
breaks down – their makers are contented to keep
temperatures down to safe levels, and have no ambition to
achieve superconductivity in the near future.

Commemorative Macintosh ToffeeMac chocolate issued by Apple's Advanced Technology Group, to Terry Lee, the unsuspecting factory worker who wasn't fired after all. "They call me a genius, but I couldn't tell a superconductor from a train conductor – honestly. A few weeks ago, they would have sacked me. I operate the dryer where motherboards are coated, cleaned and dried after soldering. One day I had bought dozens of chocolates for a staff celebration of the new Mac production start scheduled for the first day of this month, but I left them too close to the storage drum, and half fell in with the motherboards. In the heat, they melted in seconds, and there was nothing I could do. I could not tell anyone."

A smaller computer, which generates less heat, actually stands a better chance of achieving superspeed. But how to cool it?

Superconductors

The researchers are not only trying to bring temperatures down. Their major effort is focused on the other half of the equation: the materials used to conduct computing impulses. A "superconductor" is a material which reacts more strongly to lowered temperatures, by conducting electricity with less heat generation and lesser friction – both of which are unwanted by-products in the computing industry. Less friction means less energy lost – in short, more energy retained for pushing the electrons along at maximum speed.

During 1989 several laboratories, among them IBM, reported progress with superconductors. Chips made from gallium arsenide and a range of other materials were tried, with some success. To the personal computer user, however, this is little comfort as long as "success" continues to be rated in temperatures a couple of hundred degrees lower than you would ever want in your living room.

The breakthrough

Enter destiny, or fluke, once more in human history. Nobody in their right mind, except an assembly-line worker in Singapore, would have tried to mix silicon with toffee. They should have. One of the emulsifiers used in toffee chocolate, and in your favourite Mars bar, will etch into the surface of the Motorola 68000, creating a thin layer of the most superconductive membrane the world has seen.

Even at room temperature it triples the computing speed; at a temperature of -17°C, which you can reach in your home freezer, the speed increase is a staggering 800 times. A user who packed party ice around her Mac Plus while working, estimated a 50-fold improvement.

~ A guide to super cooling ~

A ToffeeMac will perform according to the operating temperature. The following is a loose guide to performance levels under various cheap cooling conditions. The performance gains are compared with a standard Mac Plus.

Cooling Method	Approximate Operating Temperature	Estimated Performance Gain
Living Room	22°	3 times
Air conditioner on low	19°	4-5 times
Place Mac in basement	15°	6 times
Wrap in wet towels	14°	7 times
Place in esky with ice	6°	30 times
Pack in party ice	3°	50 times
Use external monitor, keep the Mac inside the freezer and only the keyboard and monitor on the desk	-17°	800 times

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"I bought a printer, not a shredder," says David Wallis of Mitsui Computer, who had no idea he had a ToffeeMac until he tried printing to the ImageWriter. Mr Wallis called Apple Tech support, and was advised to connect the printer via AppleTalk, which "would slow things down quite a bit".

Apple Computer has been left high and dry by this discovery. Its premium priced high-end models suddenly have scant advantage other than colour, and the price you pay for colour is having a Mac that is completely out-gunned by the discontinued 512K model. If you're prepared to store it in the freezer, even a 128K Mac is faster than a Mac IIfx.

It is unlikely that this state of affairs can last for long. What's good for the 68000 should be good for the 68030, only not yet. *Australian Macworld* tried smearing toffee over the CPU of a loan model Mac IIci, with no improvements at all. The reason is that Motorola changed the protective coating between the 68000 and the 68030 series, with the result that the toffee cannot etch through to the wafer layers of the 68030.

Apple will surely come good with upgrades for the unlucky owners of 68030-based Macs, but it would involve exchanging motherboards and treating the exchange units in a chemical bath to remove the protective coating. Meanwhile, for Mac 512K, Plus and SE owners, this is a do-it-yourself job. Watch out for any action that might void your AppleCare warranty, though! See "Do it yourself in ten steps" to find out how to go about it.

How to test your own Mac

Question: Do I have a Mac that has already been emulsified?

Answer: Only one batch of 800 Mac Pluses got away

~ Do-it-yourself in ten steps ~

At the time of writing, we had not heard of any Apple dealer who was certified to carry out the emulsification process on existing Macs, but we have enrolled the services of a well known computer consultant, Paul Zucker of Paul Zucker Computing, Pennant Hills, NSW, for advice on the safest procedure. In the interest of safety, we have omitted one step in the following instruction. To obtain guidance on that crucial step, readers are encouraged to contact Zucker on phone (02) 484 8262, and he will talk you through it.

1. Unplug the Mac from the wall socket.

2. Open the Mac and **disable** the CRT, lest fatal electric shock may result. **Actual procedure withheld – take advice from Zucker.**

3. Unplug the disk drive and video cables from the motherboard, and slide it out.

4. Melt two Mars bars on the stove over low heat. Do *not* use microwave – it appears that radiation breaks down molecule structures in the toffee emulsion and renders it less effective. This partially explains why research labs had not discovered its properties; they all use microwave for heating.

5. Using a fine sieve, drain the most fluid components of the Mars bar into a cup. You may safely eat the rest.

6. Pour gently over the microchip, easily recognised as a square flat tablet (not unlike a domino) marked "68000", and let it set. Wipe off excess chocolate with a dry cloth (you may lick the cloth afterwards).

7. Pour a small amount over the RAM chips, the clock chip and the SWIM chip, but avoid the power supply, and waste nothing on the motherboard itself. Toffee has no effect there; and because the board contains the only Apple-proprietary component, a 15mm length of twisted pair copper wire, you may void the warranty.

8. Leave to dry for 5 minutes, then reassemble.

9. It will take two-three days before any improvement in performance is evident. It takes that long for the emulsifier to work its way through the coating. Don't worry – when the chemical reaction has done its work, you'll be the first to know.

10. For faster results, chill the Mac for at least 12 hours in a deep freeze at -17°, taking care to embalm it in glad wrap to avoid condensation.

Caution: Some peripherals cannot cope with a ToffeeMac. Hard disks are OK, since the SCSI bus keeps its own timing control and would not let the Mac write to or read from disk faster than the disk can manage. If you have an ImageWriter, on the other hand, be extremely careful. Some owners have reported it to spin out of control, mulching the paper under the tractor feed and accelerating the roller until sprockets and teeth break away and spray out like bullets from a machine gun.

With Easter coming up, another warning: Easter eggs are no substitute for Mars bars. Carob chocolate substitute is as useless as it tastes, and marzipan contains none of the "GTX" stuff; only Darrell Lea's new nougat eggs have what it takes. This year, they went on sale from the first of April, we were informed.

~ What they said ~

John Sculley: The optimal brand of chocolate is commercially sensitive information. We shall be copyrighting this; a request has also gone to President Bush that a US export ban be issued on military grounds.

Jean-Louis Gassee, now with IBM: "We've tried, but toffee doesn't work with the silicon used in Intel processors. The Thomas Watson Research Centre is on to it, and we hope that Perrier might do the trick. In the meantime we are reassuring our major accounts that speed is not all-important; we have superior human interfaces going for us. Incidentally, this was my idea to begin with."
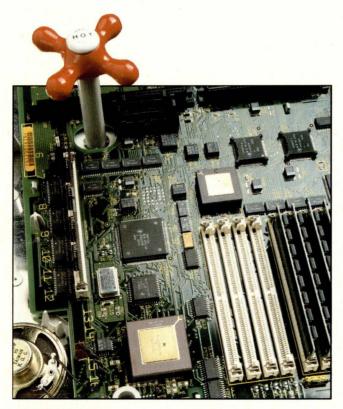
Glen Miller of Ashton-Tate: It's a boon for us. This will give dBase Mac a fresh start.

John Mackenzie of StatusGraph: I sell second-hand Mac Pluses, and this is the greatest thing that has happened to me. Apple has offered to trade mine in for brand new Macintosh IIfx's, but my customers refuse to sacrifice speed to that extent. I had to say "Thanks, but no thanks."

John Greenleaf Whittier (we found this comment in the obscure journal *Maud Muller*, and are still unsure as to its relevance): "For all sad words of tongue or pen, the saddest are these: 'It might have been!'"

from Apple's Singapore factory before the accidental toffee spill was discovered. Of these, 200 reportedly reached Australia in a delivery on the first day of this month. Apple

STOP PRESS: During the preview and photo session for Apple's latest, the Mac IIfx, we realised that the company has been quick to take advantage of the new technology. Under the hood of the machine hides a conspicuous red tap, used to occasionally top up from a small reservoir of liquid toffee positioned under the motherboard. Officially labelled the SWEAT (Super Wozniak Enzyme Accelerating Transmission) controller, staff refer to it as the Toffee Tap.

may be able to track your unit from the serial number, if you contact Emilio Robles at (02) 452 8000.

Question: Can I test for it myself?

Answer: If you have seen another Mac at work, you'll know the difference. Nothing comes close to the ToffeeMac. If you are a lone user and have not made direct comparisons, however, here is the way to test. (Even a three times speed improvement under living room temperatures may slip by some users.)

Buy several bags of party ice. Lay these over the top and around the sides of the Mac, taking care to keep moisture off the machine, if necessary using a plastic sheet. At this temperature, near 0°C, differences stand out much more dramatically.

Next, open up Excel and enter the formula for a sine curve. This formula would do:

$$f_1(x) = \sin \frac{2\pi [x]}{n}.$$

$$n = 5$$

Set up a graph, and use the (supplied) macro to force iteration. *If* the graph changes at the rate of real-time animation (30 times a second), you have a ToffeeMac.

Excel macro: IF(date = 1/4/90, abort, else continue); For a = 1 to 10; do; "cosine(90) is a problem"; jmp; a = a + 1; done; Return()

Alternatively, open up FullWrite Professional and try some common procedures (Save, Find/Replace). If it executes at roughly the speed of an average word processor, you definitely have ToffeeMac.

Why toffee chocolate?

We don't know. Across Europe and the US at least a dozen chemical laboratories are working around the clock, stooped over chocolate bars to find the active reagent. Interest centres on the three emulsifiers Hippocrene, Mnemosyne and Laodamia, but it is no exaggeration to say that the scientists have been caught with their pants down.

So have others who should have known better. **MAC**

C onnecting to a bulletin board system (BBS) is an easy way to enter the world of telecommunications.

This article will show you how to connect to my favourite bulletin board, the Sydney Information Xchange (SIX, where I moderate the Mac section) using Microphone II. By following the instructions, you can soon be sending messages across the world and access many megabytes of good software.

What is a BBS? A BBS is merely a personal computer running a special sort of communications software to answer the telephone connected to a modem and a phone line. The BBS that I use as an example is an IBM PC running GT, a shareware communications package that is programmed to run a BBS as an option. Commonly, the BBS software takes care of security, messages, and uploading and downloading files.

Untangling the spaghetti

The first step is to connect your modem properly. You should connect it to the port on the back of the Mac with the icon that looks like a telephone. Then there's a few hated acronyms to explain:

DB 25 = the plug that most modems want at their end

DB 9 = the modem connector that all Macs pre-Mac Plus need

DIN 8 = the (round) connector which later Macs use

You can get the correct cable to connect a DB25 on the back of your modem to the Mac by getting a cable from NetComm.

NetComm offers two cables, one ending with a DB-9 at the Mac end, another ending with a DIN-8.

A DB 25 is a standard, of sorts, for serial connectors. When we say "serial" we are not actually talking about the cable. Serial, as distinct from parallel, refers to the way the information goes down the cable. Serial means that the information goes down one bit at a time, parallel means that several bits travel at the one time. Except for the SCSI and floppy disk connectors, all the ports on the Mac are serial.

Speed

Now, turn on your Mac and run the comms software. First, set the

Connecting to a BBS

A no-nonsense primer from A to Z

By Tony Williams

software to talk to the modem. Open up the Communications Settings dialogue under the Settings menu and set the speed of communications to the fastest speed your modem will support. At the same time, set the dialogue box to 8 data bits, 1 stop bit and no parity. If this sounds like gibberish, do not worry – not many others understand what it means either. Suffice to say that it must be done, and if you need to

change it then the person at the other end will tell you.

"My Mac is not terminal?"

You have to make sure the software understands the terminal commands sent to it by the BBS. They are called terminal commands because originally serial cables (and later modems) were used to connect "dumb" terminals to a host computer. Most of

---

Watch the flashing lights

Most modems have a series of lights on the front that give you an indication of what the modem is doing. Some of the lights and labels vary from modem to modem, but the important ones are as follows.

TD, Transmit Data or Transmit

This light indicates when your modem sends a character. When you hit Return the light should flash.

RD, Receive Data or Receive

Indicates that data is being received over the line. When the person on the other end hits Return, this light should flash.

OH or Off Hook

When the light is on, the modem is "off hook", as if you had picked up the handset of your telephone.

CD or Carrier Detect

The light comes on to show that the modem has established a connection to a modem on the other end of the line. "Carrier" is jargon for an intermittent signal that the two modems send to each other to say "I am still here". If at any time the phone line drops out or becomes too noisy the modems might stop connection and you will "lose carrier". The light will go off and you will have to redial.

TR or Terminal Ready

This is a hangover from the days when serial communications were only used by dumb terminals. Light on means that your computer has told the modem that it is ready to talk.

AA or Auto Answer

Some modems automatically answer if someone rings your phone. This is called, obviously for once, "Auto Answer", and when this light is you can be certain that when someone rings. the modem will scream at them. Unless your phone line is dedicated to a modem, this is not a polite thing to do.

Communications Settings

Baud Rate

○ 50	○ 200	○ 1800	○ 7200
○ 75	○ 300	○ 2000	○ 9600
○ 110	○ 450	○ 2400	○ 19,200
○ 134.5	○ 600	○ 3600	○ 38,400
○ 150	◉ 1200	○ 4800	○ 57,600

Bits per Character: 8 **Stop Bits:** Auto **Parity:** None

Modem Driver:
Standard
Telebit
UDS 2400
USR Courier HST

Connection Port:
Modem
Printer
None

OK

☐ Hardware Handshake   ☐ Strip 8th Bit   Cancel

MicroPhone II's Communications Settings dialogue box. This is ready to talk to a 1200 baud modem connected to the phone port on the Mac.

Terminal Settings

Terminal
Terminal Type: VT-102/ANSI   Color
VT102 Capture: ☐ on CR   ☐ on Clear

Formatting
Font Size: ◉ 9-Point   ○ 12-Point
Columns: ◉ 80   ○ 132
Cursor Shape: ◉ Block   ○ Underline

Additional Settings
Backspace Key: ◉ Backspace   ○ Delete
☐ Local Echo   ☐ New Line   ☐ Auto Wraparound
Answerback Message:

OK   Cancel

The Terminal Settings dialogue box. The "Color" button brings up the "Color Options" dialogue box.

the commands and settings used today originated back then. In fact, communications software is just a way of turning your Macintosh into some sort of terminal, although it does add a great deal more features than the terminals it copies. When software behaves just like a terminal, we say that it "emulates" it.

Open up the Terminal Settings dialogue box under the Settings menu, and set the Terminal Type to VT-102/ANSI. Why? The other settings, TTY and VT100 are for other types of terminal, less intelligent than the VT102. TTY is sometimes referred to as a "dumb terminal" because it is so unintelligent. TTY is short for "teletype", so called because the first terminals for computers were slightly modified terminals almost identical to that used for telex or telegrams. The VT102 setting makes the software behave the same way as a Digital VT102 terminal and allows the other computer to send ANSI standard screen drawing commands. Turn off the VT102 Capture check boxes, as we do not need it.

A touch of IBM

Now, click on the Color button to bring up a dialogue for setting the colour options. If you have a colour Mac, then click both the Use Color and Accept ANSI Color Commands check boxes. It is a good idea to set the Foreground Color pop-up menu to White and the Background Color pop-up menu to Black. If you do this then MicroPhone will behave *almost* exactly

like an IBM PC screen.

The "almost" is there because certain characters in the IBM PC character set are not covered in any Macintosh font; the result is the strange set of characters you can see around the menu items in the figure "SIX main menu".

Study the figures to find out how these dialogue boxes should appear. If you would like your comms software to behave just like a black and white IBM screen *including* the missing characters, then a public domain package called ZTerm is available. ZTerm offers almost no frills, but it does support the entire IBM character set. ZTerm is available from the SIX BBS and several other Mac BBS's and user groups.

Talking to the modem

With the cables installed and the software running, it is wise to test that the Mac and modem are communicating. Make sure that the modem is on and connected, then type "AT" followed by Return. The modem should reply with "OK" on a new line. If you do not see the "AT" you typed, you need to set "local echo". This means that the software will echo on your own screen everything you type, while *also* sending the characters to the modem. You adjust Echo On/Off in the Communications Setting dialogue. If you see "AATT" it means that you have local echo set and do not need it.

Most bulletin boards will echo your characters for you so you do not need it set. If you see the "AT" but the

modem does not respond, check that it is on and the cables are connected. Also make sure that the cable into the Mac is connected to the port with the telephone icon, and that the software *expects* to talk through this port. The port selected shows in the same dialogue box.

If this does not get some action, you either have a bad cable or your modem is not "Hayes compatible", "Do I need a Mac modem".

Try another cable if you have one, otherwise check that when you hit Return the "Transmit" light on the front of the modem (it may be labelled "TD") flashes. See the sidebar "Watch the flashing lights" for the meaning of all these lights. If none of this works, scream for help.

Ready to dial

Now that you have a working modem (yes?) you are ready to set up for dialling. Enter the BBS phone number (in this case (02) 519 6681) into the "phone directory" using the Create Service dialogue box under the Phone menu and then dial the service using the same menu.

If the modem at the other end answers (it might be engaged, a common feature of BBS's), you should be hearing the two modems scream at each other, then the light marked "CD" will light up and the message "CONNECT" will appear on the screen. *You are connected to the board.* If after a second you do not see any text appearing, hit Return to jolt the other end into action. Answer the questions

as they arise. If you are using MicroPhone, answer "Y" to the question "Does your terminal support ASCII". If this is your first entry to that particular board, you must log on as a "visitor". The password for visitors to the Sydney Information Xchange (SIX) is "test", so type "test" and press Return.

We're in business

You are now logged on to the board, which means that in essence you need no longer feel that you are dealing in "communications" – from now on what happens is similar to having a menu-driven database on your own Mac. You will see a menu like the figure "SIX main menu". As a visitor you will not have much time so you cannot download any files. Let's try to enter a message instead. Type "a" followed by Return to change the mail area you are in and you will get a list of the mail areas. You want "5" so type a 5 which takes you to a submenu for the mail area. Now type "e"to enter a message. (You could have put "a 5 e " on the first line to accomplish the same thing) Now you can enter your message. Naturally, it will be to "Tony Williams" and the subject is "Your article on comms", and you'll make it a Public message. Now enter the body of the message telling me what you think

The SIX main menu using ZTerm.

The SIX main menu. The (ugly) rows of M and D characters are shown because the Mac does not support the IBM extended character set.

of this article ("absolute gibberish").

End the message by putting in a blank line (this is how most boards know you have finished a message) and saving it. While you are online for the first time, you should also meet any requirements the system operator ("sysop" – he/she runs the board) has of new users. On the SIX board it is requested that you place a "Hello to all" message about yourself and fill in a questionnare. You enter the "hello" message the same way you entered the previous one. You get to the questionnare by typing a "Q" at the main menu.

All done, and time to log off – "log off" is jargon for leaving the board. Type "G" at the main menu. You will be asked "Disconnect?[Y/n]" the uppercase Y signifying that this is the default entry for the question; in other words, either enter "Y" or a Return by itself.

Two-timing

The second time you "log on" (jargon for ringing up the board) the sysop should have upgraded you to a "registered user". This gives you more time on line and allows you to "download" and "upload" files. Downloading is retrieving files from the board, uploading is sending files.

To download a file, you move to the board area where the file is found and then start the transfer. The file areas are similar to folders on a Mac, and represents the sysop's filing cabinet. To change the file area, type a "C" and the list of areas will be displayed.

We'll try area 47 in the Macintosh section called "INITs and cdevs", so type "47" followed by a Return. You may list all the files in this area by typing "F" which produces the names and a short description. The file you want is INTCDV3. SIT, the new version of INIT cdev by John Rotenstein. It is a useful utility, free, and few of you will already have it. Press D for download, type in the name followed by Return. A menu comes up asking which "protocol" you want to use.

What do you mean "protocol"?

A protocol is a method of transferring files that automatically takes cares of transmission errors. You

will use the XMODEM protocol, so type an "X"; the board will respond with a message that you have 40 seconds to commence. Don't just sit there! Tell the software on the Macintosh to catch the file by selecting "File Receive XMODEM" from the Transfer menu.

You will be asked to name the file. Don't panic; this is not a quiz. The software is asking for a name to give the file when it places it on your own disk, so you may name it whatever you wish. Call it "INIT cdev 3.0.sit" and

click the "OK" button. The transfer should then start and you will see a box showing the progress of the transfer. After the transfer has completed, you may carry on – to check your mail, write messages, or log off. John Rotenstein's file has been stuffed using Stuffit version 1.5.1. If you do not have this software, you may download it from the board. Stuffit is used to compress the file, which obviously speeds up transfers to and from the bulletin board and saves space on the board.

On your way
The SIX board holds around 10Mb of Mac files, split fairly evenly between graphics and software. Other bulletin boards are run by Apple and Mac user clubs in most States. You may be surprised to find that after conquering the modem and comms settings, the individual BBS menus do not vary that much. Congratulations! You are now a BBS graduate. **MAC**

Some common questions and the answers

Do I need a "Mac" modem?
There is no such thing as a "Mac" modem. Almost any modem will do. When shopping for a modem, it is always worthwhile to find one that is "Hayes compatible," which means that the modem command set is the same as that used in Hayes brand modems,

What do "baud" and "bps" mean?
Baud is a misused term. Its true meaning is the number of discrete conditions or signal events per second. In the special case where each signal event represents exactly one bit, normally the case with modems, the baud rate is equal to the number of bits per second. Bits per second is often shortened to bps.

If you absolutely must figure out how many characters per second are being transmitted, take the number of data bits, add the number of stop bits, add 1 for the parity bit unless you are using "No parity", and then divide the bits per second by that number.

1200 bps at 8 data bits and 1 stop bit would be: $1200 / (8 + 1) = 133.34$ characters per second.

After all that you are probably wrong, as the modem spends some time just checking that the other modem is still there, and when you are using file transfer protocols, they also burn up varying amounts of bits and bytes. It is all a side issue. 2400bps is 8 times faster than 300bps, leave it at that.

By the way, I have never been sure of what "stop bit" and "parity bit" actually mean. I have never needed to know in ten years of using serial communications on computers, except to make sure that both ends are using the same values. It is almost certainly thrown into a conversation to confuse or impress you.

What sorts of services can I reach?
There is a wealth of information at the end of your telephone line. BBS systems are common and popular. Also widespread are the dial-up information services. See also p.42 on CompuServe. Many other services offer modem connection. *Australian Macworld* has even used a dial-up Linotronic Typesetter. We dial a small bulletin board run by WYSIWYG in Sydney, upload our colour graphics files for colour separation, and later that day a courier returns the output. That way we only pay for one courier and a local phone call instead of two couriers.

Can I call up my friend's Mac?
As long as your friend has a Mac and a modem, it is easy to ring him up with your modem to "chat" or exchange files.

Both set your software as described in our article, *but* set local echo "On", and then one of you types "ATA" return. This tells his modem to answer the phone.

The other dials him via modem by typing "ATDxnnn-nnnn" where "x" is either "T" if you have a phone that uses tone dialling or "P" if it is pulse; "nnn-nnnn" is the receiving phone number of the receiver. This should see you connected. If any of you types a few characters you should both see them on your screens. To transfer a file, first warn the receiver by typing something like "About to send a file using XModem", pull down the "Transfer" menu, select "Send XModem" and choose the file to send. Your friend selects "Receive XModem" from the same menu, and the file transfer should begin.

Are there alternatives?
There are several other ways of using the Mac and modems to communicate. If you have two offices running an e-mail system, you can set up a "bridge" between them using modems. A "bridge" is merely a software scripted connection between two systems which takes care of the dialling, connections, and even the addressing of mail files at each end. You could complete a file transfer or send an e-mail message to a person at an office hundreds of miles away. Using this system you do not actually have to do anything with the modem – the mail software takes care of it all. On a network, "your" modem might be anywhere else in the building.

Timbuktu Remote, a new breed of communications software, allows you to phone up another Mac which also has Timbuktu Remote installed, take control of the other Mac and transfer files between the machines, or even run an application on the remote Mac.
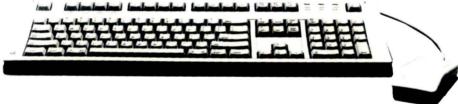
Faxmodems allow you to send and receive faxes using your Mac. Their advantage is that you can send at better quality than normal fax machines, and you can store in the computer any incoming fax.

Some of the techniques described in our article can be useful even without a modem and telephone. You can transfer from a Mac to a UNIX or MS-DOS computer using a special cable called a "null modem" using the same software and going about your Comms settings in the same way.

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AROUND THE CORNER. AROUND THE WORLD.

The rapier from SAS

JMP adds elegance to statistical software, even though it cannot make statistics simple

By Rob Hall

Around the mid 1500s the work of a French theoretician came together with the metal-working skills of artisans in Italy and Spain to produce an elegant, problem solving tool – the rapier.

The rapier was a slender sword with no cutting edge; just a sharp point. It was a gentleman's weapon, and to solve problems with it meant that both parties had to agree to play by a set of rules. These boiled down to accepting that gentlemen don't club, slash, or chop. They poke and lunge. So, a rapier was a great success for all of those people who took part in well-disciplined brawls. But it was not much use in the hurly-burly and huggermugger of boarding pirate ships, or subduing unruly peasants. In these conditions a more versatile gadget that allowed for some poking, clubbing, chopping, and slashing was all the go.

About four hundred years after the rapier was perfected, statisticians developed their own elegant problem solver, and they called it the General Linear Model (GLM). While the name is daunting, the GLM is really a way of trying to explain or relate the variation in one variable (such as "sales") to the pattern of variation in other variables (such as "dollars spent on advertising"). A linear model is used to represent this relationship in a way that looks something like this:

sales = dollars spent + shelf area + no. of counter staff + . . . and so on.

(Those of you who have used *regression, analysis of variance*, or even the *trend( )* command in Excel, have tinkered with the GLM and will know that what I have left out of the example equation is the set of weights associated with each variable.)

An elegant, contemporary embodiment of the GLM is the Macintosh application called JMP. Like a good rapier, JMP is expensive, and like any rapier, cheap or expensive, JMP is rather limited in its range of application. The hurly-burly of sorting through data with cluster analysis; of producing pages of tables showing variables percentaged against each other; or of producing pie charts for business presentations, is not for JMP.

The philosophy behind the design of JMP shows right from the start. It does not, for example, have menus that offer analyses by name (such as *regression* or *analysis of variance*). Instead, it specifies *classes* of analysis by the relationship between Y and X variables. (You can see examples of these classes in the help menu window in figure 1.) This means that the user really needs to understand statistics to the level where they are comfortable with thinking about their analyses in this way. I do not think this is a bad
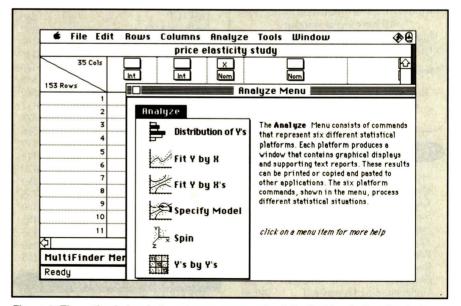

Figure 1: The active help window shows an example of the first level of on-line help. At the top of the data table (the background window) are the boxes in which information about the nature of each variable can be entered. The bottom left-hand window shows the word ready. This window reports the operation that JMP is carrying out at any time.

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EPS ClipArt Library
Over 600 Images
1st PLACE
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Fastback MAC II *(Upgrades Available)*	$199
FastForms	$199
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Laplink MAC	$140
NVelope	$55
PC TOOLS MAC ***** *SALE* *****	$69
Picture Base	$112
Powerstation	$75
Pyro	$68
QUICKDEX	$79
QUICKEYS	$118
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thing – quite the opposite in fact – but it does mean that JMP is not, like SPSS (Statistical Package for Social Sciences), pitched at those people who need to slavishly follow examples in a manual to carry out their own analyses.

There *is* a manual (464 pages, spiral bound) which contains tutorial help, a detailed reference section on the menu items and a section outlining the statistical algorithms incorporated in the software. It tries very hard to be reader friendly; is fairly honest in pointing out JMP's limitations (such as difficulties with repeated measures analyses); and sometimes gets into terrible tangles trying to make statistical concepts like *uncertainty* clear "to the rest of us".

On-line help is presented in the increasingly familiar pop-up hypertext format. But JMP's capacity to help the user goes even further than advice. At the top of each column of the spreadsheet style data table are two boxes, one that shows the *level of measurement* (nominal, ordinal, or interval), and one that shows the *role* (X or Y variable, label, weight or count) of the information in the column. (You can see these boxes at the top of figure 1.) When you choose a class of analysis from the menu, the actual algorithm that is used in the analysis is automatically sensitive to the level of measurement. This means that if the variables you chose for a *Fit Y by X* analysis are both at interval level, then JMP will carry out a linear regression. But, if they were both ordinal or nominal, then the analysis would be a contingency table. If you want to override this feature, you simply clear the entries in the boxes that specify the measurement level.

The elegance also shows through in the graphical tools that are supplied to support the user's understanding and interpretation of analyses. Things such as *leverage plots* to show how "flukey" a regression line might be, or *confidence circles* and *mean diamonds* to indicate the area of doubt around figures such as means. Many of these tools draw on quite recent developments in statistical thinking, and, perhaps because of this, their use and interpretation may not be immediately apparent to the untrained user.

The gap between the mythical "average user" of business statistics and

graphics, and the real target audience for JMP, is most clearly evident when you look at its treatment of contingency tables (or cross-tabulations). Despite the efforts of the authors to make the example in the manual immediately appealing to the average user, by focusing on a hypothetical market research example, the analysis they present would leave most board room number crunchers searching for something they recognise.

JMP provides a powerful and technically appealing mode of contingency table analysis – for the statistics fiend. In one mighty bound it carries out log-linear modelling of the table, and provides a graphical indication of the relationship between the variables in the analysis by means of a *mosaic plot*. "But where", wails the board room strategist, "are the rows and columns of percentages?" The authors are up-to-date on statistical theory, but they don't seem so well versed on the psychology of communicating quantitative information.

The gap between user and JMP needs to be bridged by education, and it is in the educational context that this application will shine. Because the analysis menu shows generic families of analyses rather than particular techniques, there is a closer link to statistical theory than occurs in the menus of most competing products. This provides the opportunity for a strong carry-over of what students are

told in the lecture room to what they see on the computer screen. The pricing of the educational versions make it practical for students to have their own copy of the software.

JMP has been developed by the

> **" JMP is more of a tool for the specialist than for the occasional user of statistics "**

SAS Institute, best known for the mainframe statistical package *SAS*. I have never felt that *SAS* was kind to users – "user aggressive" covers my own sentiments. So it was a pleasant surprise to find that the JMP user interface is smooth, consistent and helpful.

The authors have been a little too twee in trying to make statistics something we should all "just love to bits". The application icon is a little person jumping; the help file icon is a little person in a parachute and so on. Shades of IBM and that clown. And which Mighty Marketing Mind decided on the name JMP? (We all write assembler code and know about the JMP instruction, don't we?)

One decision that anyone who writes a statistical package has to address is the amount of output material to produce as the default. In some packages you have to ask explicitly for each item of output you need; in others, you are deluged with tables, matrices, and graphs whether you want them all or not. The authors have opted to provide "the works", but not to drown you in output. When JMP completes an analysis, it shows minimum output on the screen. The rest of the output is concealed, and a selection of buttons can be used to reveal the parts you want to see.

When the full output has been revealed, it is as if you are looking at a large sheet of paper, like a newspaper, with sections of the output appearing in ruled off columns and boxes. To see

Product: JMP
Version: 1.0
Application: Statistical analysis
Pros: Well thought out interface design; wealth of diagnostic information to help assess the robustness of an analysis
Cons: Pricing policy; limited types of analysis at top dollar price
Requires: Macintosh with at least 1Mb of memory (2Mb recommended) MultiFinder friendly
Distributor: SAS Institute Australia
Publisher: SAS Institute Inc.
Price: $1,100 (discounts for quantity and for educational users. Limited capacity student edition $78)
Reviewed by: Rob Hall
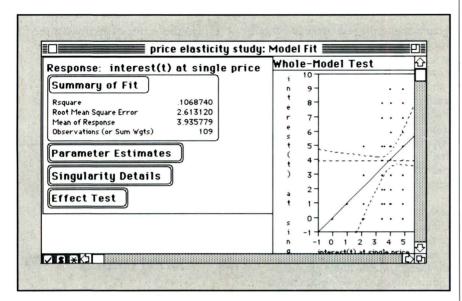**Date:** March 8, 1990
Copy protection: None

Figure 2: An example output window from JMP. The "buttons" with double borders are used to reveal sections of the output that might be of particular interest.

all of the output you need to scroll around the "page". While this arrangement can be awkward on a small Mac screen, JMP does have a feature that redeems much of the clumsiness: a journal.

The journal is a text file that can be accessed and edited from within the application itself. Sections of output from an analysis can be pasted whole or, by using the selection tool, in part, to the journal. In this way, you can be writing a report as you perform an analysis; pasting figures or a graph into the journal and then adding explanatory text.

As you can see by looking at the *Analyze* menu, JMP can construct three-dimensional scatterplots that can be spun and viewed from different directions. This *platform* (or analytical procedure) includes the option to calculate the principal components of a set of variables and to show bi-plots. Plots include the *brushing* facility – highlighting a point in one plot also highlights it in related plots.

Data can be manipulated easily. Transformations, recoding and the construction of new variables is largely done by using the "calculator" dialogue box. Data can be imported and exported with ease. In the data sheet itself, cases can easily be flagged so that they are temporarily deleted from an analysis. Unlike some statistical

applications coded in Fortran, JMP (coded in Lightspeed C) is able to accept variables that contain text and to have variable names that are usefully long.

The application file is about 574K in length, and the help file is about 348K. This means that JMP and its help file take up more disk space than, say, DataDesk version 2.0 which takes up about 600K, but less than FASTAT version 1.0 which grabs about 1 megabyte. I have contrasted the size of these three packages because, in terms of features, they are clearly competing for the same market. JMP, I believe, is the most polished of the three: it offers fewer types of analysis, but it offers them in a much more sophisticated way than the other two products. Yet, in a dollar-for-features comparison, JMP lags well behind.

Despite the attempts of the people who wrote the manual to persuade us otherwise, JMP is more of a tool for the specialist than for the occasional user of statistics. What it does, it does very well, but if your needs are for a package that extends beyond the constraints of the linear model, you may want to buy a Swiss Army Officers knife rather than a very expensive rapier.

MAC

Red Ryder is dead,

Communications software for the Macintosh has had a chequered past. Many programs have come and gone, some have forged ahead then been left for a long time without an upgrade. The longest lived of them all was a program called Red Ryder by Scott Watson.

Scott Watson was one of the first programmers for the Macintosh to release software using the "shareware" system. Using this system, you were able freely to give away Red Ryder to anyone. If they liked it, they sent Scott a small fee and became registered users. The program evolved and improved over the years until version 9.4 was released a little over two years ago. When he released version 10 he started selling it through normal distribution channels. Now version 11 has been released under the name "White Knight 11", because (according to Scott) the people from whom he licensed the name "Red Ryder" wanted to charge him a lot more for the name.

White Knight looks and feels very similar to Red Ryder 10, but when you take a close look you discover that many things have changed. The number of new features is fairly large. There are also some improvements to old ones. Red Ryder may be gone but White Knight continues a tradition of excellence.

A strange way of supporting a large number of Command-key equivalents has been used in White Knight. Instead of confusing you with using the Shift and Control keys to act as modifiers, White Knight uses a number of two-character menu equivalents. This seems strange at first, but after a while the mnemonic nature of his choices makes it very easy to use. Quite quickly I was pressing Command-P-Command-E to edit a procedure or Command-M-Command-H to hang up the modem. The two Command key equivalents are all in hierarchical menus and, sensibly, the first character is almost always the first character of the menu item that contains the hierarchical menu, the second is the first character of the menu choice itself.

It now supports more varieties of XModem, YModem and Kermit, and adds the newer, faster ZModem to the list of file transfer protocols supported.

The VT100 terminal emulation has improved slightly. You would have to use complex full-screen editors or entry screens under UNIX to notice the difference. The only remaining problem with screen emulation is that IBM graphics are not supported. The ANSI screen commands, to flash lines and clear and scroll screens, all work, but it only displays the top 127 in the IBM character set. A minor problem perhaps, but it has been fixed in the excellent shareware ZModem package.

The documentation has been improved (though not quite enough in some areas) yet remains low-key and chatty. Improvements to the procedure language which it used to automate communications sessions deserve several paragraphs of their own.

Procedure editor

The program incorporates a procedure editor not unlike Microphone II's, just a little better in some areas. For example, even though you are using the procedure editor it only produces and reads text files so you can swap between using the built-in editor or your favourite text editor. If you compile a procedure from the editor it jumps back to White Knight, compiles the procedure and, if there is an error, returns to the editor with the line containing the error highlighted.

Product: White Knight
Version: 11
Application: Terminal emulation and file transfer
Pros: Powerful macro language, good support for transfer protocols, buttons to run scripts.
Cons: When, oh when, will this computer make the coffee; seriously, a little harder to use than Microphone II
Requires: Any Mac, connection to a host via modem or serial link
Distributor: Firmware Design
Publisher: Freesoft Company
Price: $225
Reviewed by: Tony Williams
Date: December 17, 1989
Copy protection: None

long live White Knight

By Tony Williams

The procedure language has been extended. Except for minor omissions, mainly in flow control, it would be a full procedural (using the term "procedural" in its technical sense) programming language. One feature I cannot remember from Red Ryder 10 is the ability to call another procedure file as a subroutine and return from the called file.

It is possible to create windows, bring up dialogue boxes, read and write characters from files, create menus, access the standard file dialogue boxes and so the list goes.

A large number of string and numeric variables are available, along with a long list of commands for manipulating them. It was the work of a morning to write a procedure to log into our US corporate news service, download the news, check our mailbox, file our news and log off complete with routines handling every possible error. Alerts came up to inform of errors and log the time on line.

Macros

The macro system has been enhanced by the inclusion of a "Macro window" where you can place icons which perform a macro. Of course, the most obvious thing for a macro to do is to run a procedure which creates a point and click interface to a bulletin board or any sort of communications session.

On a Mac with a large screen it is possible to fit a row of vertical icons and the text window on-screen at the same time. The icons can be traditional Mac icons, double-sized icons or any small PICT image.

Okyto

Okyto is a stand-alone application included free with White Knight. The purpose of Okyto is to provide fast, efficient, easy to use communications with an absolute minimum of fuss. It achieves this admirably. You do not need to worry about parity, number of bits, stop bits or file transfer protocols; absolutely none of the problems that can be involved communicating between two computers need concern you. The only drawback is that both computers have to be running Okyto, otherwise you do not have a hope of using Okyto on yours. Okyto also allows file transfer across an AppleTalk network without the need for AppleShare.

Okyto provides multiplexed data transfer between the two machines so it is possible to queue up a number of files to be transferred between the two computers and continue to "chat" with someone at the other end while the transfer is taking place.

It also has a simple language for unattended operation but this is nothing like the full blown White Knight procedure language.

Ways to extend

If you still think White Knight is lacking a particular feature, there are still further ways of improving its procedures.

If you are a fully accredited Macintosh programmer who can recite the list of ToolBox traps by heart, then White Knight allows you to add commands by adding a CODE resource of type RCMD. These are similar to HyperCard XCMDs. Unfortunately, it includes no example

source code or instructions for writing them. But the documentation says that a "White Knight Developer's Toolkit" is available for a "modest fee".

The Developer's kit will allow you to modify the modem drivers to support modems other than the Hayes compatible modems currently supported, or to add new modem commands and extra dialogue boxes using Shell Resources.

There is an easier method of modifying White Knight than those outlined in the Developer's Toolkit. This involves using the two special procedure commands GETPARAM and PUTPARAM to modify its internal registers. These allow you to alter some of the ways it operates. As an example, in my procedure I used this facility to make sure that White Knight waits a tenth of a second between lines when sending text files to another computer.

Another facility available to the strong of heart is the ability to set up filters to trap or modify characters flowing to the screen, or capture file or text files sent over the modem. The filtering system is primitive, it only allows you to set up one to one mapping, but it does come in handy.

White Knight is a good successor to Red Ryder. It is perhaps a little, just a little, more difficult for the layman to use than MicroPhone II, but the extra effort is amply rewarded.

If you are, like me, fairly knowledgeable with communications and not afraid to get your hands dirty, you can provide a wonderful front end to the communications world using the power of White Knight. MAC

Talking to a new world
MicroPhone II 3.0

By John Rotenstein

Wow! What an upgrade. But first some history . . . Back in 1984, *Time Magazine* ran an article about a computer cowboy named Dennis Brothers. Brothers, it was claimed, desperately wanted to know how the Macintosh innards worked. So, he took his Macintosh apart.

The result of this adventure was the first Macintosh communications software, written in Basic. Brothers went on to produce MicroPhone, a fully-fledged application which included magic like automatic scripts. These scripts are a means of programming MicroPhone to perform specific actions, such as logging onto an information service, retrieving specific information, and then disconnecting. And all this can take place at 1am, without human intervention.

Software Ventures, maker of MicroPhone, next released MicroPhone version 2.0. It had numerous improvements but was basically similar to version 1.0. MicroPhone II version 3.0 boasts some amazing abilities, even though its authors seem unable to keep track of their own version numbers.

Why choose MicroPhone?

In this issue of Macworld can be found many good reasons for using communications software, be it talking to a worldwide audience of millions of computer users, or merely placing an order for a super supreme pizza.

But in the age of Macintosh, it is not enough merely to do something. Instead, it must be done in the nicest, most user-friendly manner. And that is why MicroPhone can transcend competition such as Red Ryder.

MicroPhone has a very friendly way of prompting users through on-screen buttons, menus and command/function-key equivalents. These objects can then do anything from dialling a phone number to connecting with a political debate via your favourite news satellite.

These facilities have been available since the first version of MicroPhone. The latest version provides on-screen icons (in colour, if desired), custom-made dialogue boxes, and access to external commands. When combined, these make a powerful set of communications tools.

The icon bar

MicroPhone was first to provide on-screen buttons to activate scripts and dialling. An icon bar has been added to make this user-friendly interface even more usable. For those lucky Macintosh II owners, colours icons make this feature even more palatable.

Dialogger

In its previous incarnation, MicroPhone was capable of asking the user for information through crude dialogue boxes. With version 3.0, custom-made dialogue boxes may be manufactured through Dialogger.

Dialogger is a HyperCard package which provides dialogue editing capabilities similar to (and beyond) Apple's ResEdit. The accompanying picture shows a dialogue box created specifically for ordering a pizza. The user simply clicks the relevant boxes, enters a name, and MicroPhone will transmit the order. It would require only five seconds' connect time to the pizza parlour.

The message box

MicroPhone has traditionally included MicroEditor, a desk accessory text editor. This enables users to create a document off-line and then transmit it in whole, without the tedium of non-Macintosh document editing.

This ability has now been enhanced. MicroPhone 3.0 includes the Message Box, a fully-featured, icon-driven text editor which is totally under the control of MicroPhone. Not only may documents be created off-line and in the comfort of a Macintosh editor, but MicroPhone can keep track of all documents created. This is available only through a script command.

For example, multiple mail messages may be created while disconnected from an information service. A script can track which documents have been created and, at the click of a button, automatically connect to the service, transmit the pre-written mail and then log-off in the quickest possible time.

Throughout this operation, the user need not know what is happening. In fact, different news services can be accessed with a common user interface, all handled by MicroPhone.

External commands

Finally, there is now the ability to expand MicroPhone beyond its own limits. MicroPhone 3.0 allows HyperCard XCMDs and XFCNs to be used from within scripts. These enable programmed modules to be attached to MicroPhone. Thirty such modules have been included

Dialogger for MicroPhone II enables custom dialogue boxes to be created

to create folders, control a visual "progress" box, activate Tempo macros, and even to make the Macintosh speak!

HyperCard XCMDs and XFCNs are fully compatible with MicroPhone, except where they relate to a HyperCard-specific function (such as SendCardMessage). With the approach of System 7.0 and Inter-Application Communication, this type of interface may enable virtually any program to share external commands. Expect to see more software using this type of interface.

Free steak knives

As if these features were not sufficient to soothe the savage hacker, MicroPhone 3.0 includes other niceties: coloured text and backgrounds, a keyboard-buffer window for on-line "chatting", a tear-off VT102 keypad, on-screen clock and stopwatch, the ability to search for text received within the current session, correct use of the control and command keys, international character set translation, password protection of scripts and

settings, and a visual "progress box" for file transfers.

File transfer protocols have been expanded to include ZMODEM, which is much more efficient than XMODEM and YMODEM (it uses buffer "windowing") and can even resurrect a file transfer if interrupted.

On the topic of manuals, MicroPhone includes a User's Guide, Reference Manuals (400 pages) and a Resources & Utilities guide for dialogues and external commands. All information is nicely indexed, with glossary and bibliography supplied. Included are diagrams for wiring modem cables and fully documented sample scripts.

The scripts provided on disk enable friendly connection to some of the US's most common information services such as CompuServe, MCI Mail and The Well.

More useful is the Mini BBS script supplied. This script will turn MicroPhone into a simple Bulletin Board for incoming phone calls. Callers have the ability to send/receive files with your unattended computer. This appears to be an attempt to

fight back against Red Ryder (White Knight) with its Red Ryder Host bulletin board system.

The bottom line

If you are in the market for communications software, make sure that MicroPhone is on your shopping list. If you already own MicroPhone version 2.0, there may be no need to upgrade. The extra features are nice, but not really necessary for a once-a-week connection to the local BBS. (*Unless you wish to make things easier for your fellow office workers. Australian Macworld, for example, has rewritten all scripts, and assembled a colour push button interface to a complex corporate news service that pushes MicroPhone II version 3.0 to its limits – Ed.*)

MAC
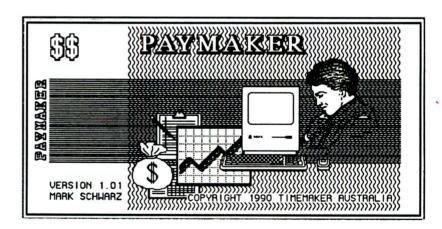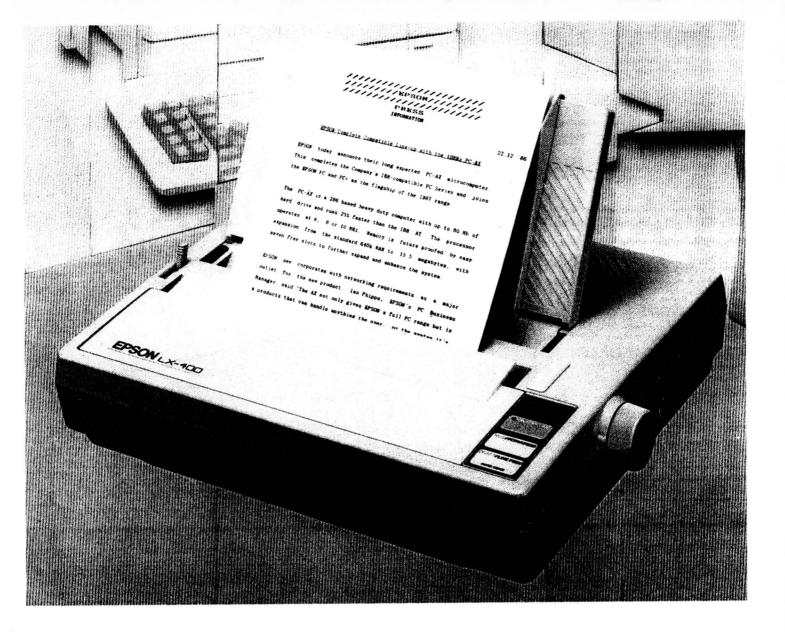
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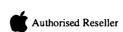
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DREAMS

By John Stachlewski

IDD was one of the few companies to compete with MacDraw in the early days of Macintosh. Those that have worked with MacDraft Version 1.2b will be familiar with the basic interface of Dreams. The package comes with "MacDraft to Dreams" conversion utilities. The program has increased in sophistication, and so has the installation procedure. To its credit, IDD no longer implements a software protection scheme.

You need a hard disk; the program occupies 852K on disk, and though the recommended RAM memory is tagged at 768K, you'll find that it must be increased to take advantage of the program.

The developers have not implemented a number of features that one would expect from packages in the same league. IDD plans to develop modules around Dreams, especially a Database, Utilities and specialised Palettes. Unfortunately, the standard libraries are in imperial measures.

One innovative feature is the editability of data points and the use of associative dimensioning or object-dependent dimension lines.

The symbol library is interesting. The process by which you create, copy and paste an item into the library is time consuming, but with the bonus that no libraries are tagged to an individual drawing as is the case with MacDraw II, so that specialised libraries can be developed for specific applications.

The layering system is well implemented. It allows multiple layers with only one layer active at any given time. Both the name and the scaling ratio that apply to that layer appear on the title bar next to the document name; The number of layers that can be used is memory dependent, as with most CAD programs.

An innovation is the availability of multiple scales within separate layers, to permit the inclusion of details within an overall drawing, whether it be a floor plan or a machine part. Layers may be assigned names that make sense to the user and can be reordered. Layers may also be merged.

Dreams is a significant advance on MacDraft, but there are some questions that need answering. The program supports its own native formats or PICT files; translators for other programs were not available when reviewed.

Given that it offers all the tools that an engineer or architect could want in a 2-D drawing environment, Dreams represents excellent value for money. With a large user base of MacDraft, it should have some ready converts. New buyers will tend to judge it as an entry level platform which can be extended in the future. In its price bracket, a number of other contenders have built-in plotter drivers and extended functions that allow greater flexibility. **MAC**

Update Note: PictScript

Version 1.1 was released after this review had been completed.

The major news in version 1.1 is PictScript, claimed to be a major enhancement to word processor and page layout programs, in that it allows the transfer of images between applications and the ability to view and manipulate them on screen while maintaining their full resolution for printing.

PictScript is claimed to give the same quality printing as PostScript EPSF, while retaining interactivity on screen. PictScript is 32-bit QuickDraw compatible, supports 16 million colours, Bezier curves, colour bitmaps and more.

PictScript permits Copy and Paste of colour graphic images from Dreams even into programs that do not support colour. In other words, PictScript does not convert graphics to PICT when copied/pasted.

PictScript will print the colour image at the full resolution of the PostScript printer, even when the application does not support it!

Version 1.1 also claims A/UX and "future system" compatibility.

It seems likely from the version 1.1 upgrade, that IDD is pointing Dreams in the general direction of design, rather than technical CAD.

SUM II: Hard disk heaven

By John Rotenstein

SUM II is an update to that very popular product, SUM (Symantec Utilities for Macintosh) and a sister to SAM (Symantec Anti-Virus for Macintosh). Both are good and recommended for any hard disk user.

SUM was originally reviewed in the April 1989 issue. The update represents a more neatly packaged product, with much more integration and a similar *look and feel*. In addition new utilities have been added to the collection.

The new utilities are:

SUM Backup is a fairly advanced backup utility, but lacks some classy features found in products such as *Fastback* and *Retrospect*. Yet, it does rate better than Apple's standard *HDBackup*.

SUM Encrypt provides simple file security. Documents *(not* applications) may be speedily encrypted, thus avoiding prying eyes. The DES encryption standard is usually supported, but the version of SUM II which is sold in Australia does not include this function because DES is a controlled export from the US. (You just never know who might buy a copy!)

The revised products are:

SUM Disk Clinic which acts as the front-end to all SUM products. It includes an excellent facility to diagnose disk problems and will automatically activate the relevant application.

SUM Recover, nee *Guardian,* is the flagship of SUM, providing many means of disk and file recovery. Whenever anything goes wrong with a disk, *SUM Recover* is your best hope for recovery. It works best in conjunction with *SUM Shield* (see below) but can also recover disks and files which have never had the Shield installed. This product alone makes the SUM package worthwhile. It now includes a **SUM Quick Fix** section which can attempt to quickly recover a crashed hard disk.

SUM Tools is totally new, and overflows with useful functions.

Features include disk maps with the ability to point-and-edit individual sectors, a memory allocation map which shows exactly where in memory applications reside under MultiFinder, the ability to view disk files and memory as graphic images, the ability to disassemble files, RAM and ROM and 101 other useful bits of trivia. In the hands of an experienced Macintosh user, *SUM Tools* can provide and modify any information on disk drives and in the Macintosh itself.
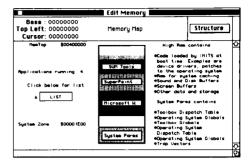
SUM **Shield** is now a Control Panel Device, which protects data in three ways. There is the famous Deleted Files Recovery facility which enables said files to be recalled from the gates of oblivion, a simple "anti-virus" feature which prevents certain damage to your disk directory and a Volume Recovery facility which makes recovery of your hard disk much easier in the case of its demise.

SUM **TuneUp** has been radically improved to offer features similar to (the now defunct) *Disk Express*. *TuneUp* will completely reorganise your disk to ensure that files are stored continuously and that all available free space is clumped together. It can also verify files, lock-out bad disk sectors and erase blank space on your disk to ensure that deleted files remain deleted.

SUM **Partition** can divide a large hard disk into many different volumes, each of which can be password protected. This is an extremely useful facility for owners of large hard disks, or for users in a shared environment. Instead of continually encrypting and decrypting personal files, simply store them in a password-protected volume which can range in size from a few K to multiple Mb.

SUM **QuickCopy**, formally *FastCopy*, is one of the best non-protected disk copiers available. Its main claim to fame is that it can copy only *used* sectors on a disk, making copying much faster. It can also read once and write multiple copies. It is

A look at Mac's memory with SUM Tools

currently the only program which can copy the High Density 1.4Mb SuperDrive format disks.

Existing owners of SUM can upgrade to SUM II. Other Macintosh users with hard disks should be aware that SUM II and SAM are vital in any software library.

MAC

Publisher: Symantec Corp
Distributor: Techflow
Price: $219 (upgrade - $69)

Finder Sounds

By John Rotenstein

Whoosh, click, zoom, crash! The Finder just broke the sound barrier. Lurking around in the uncharted backwaters of Macintosh software libraries can be found an innocuous file called "Finder Sounds". This file escaped the labs of Apple's System Software Development Group and is now brightening the lives of many a Macintosh user.

Some time back, during the development of System 6.0, someone at Apple had the brilliant idea of adding sounds to some standard Finder functions. Click on an application and hear it "Ding!". Drag it elsewhere and hear it "Whoosh!". Drop it in the trash and hear it "Clang!". Then empty the trash and hear it "Munch!".

Almost all Finder functions now have an associated sound, with additional variations. For example, when you drag a file on top of a folder, a "Gong!" can be heard with a pitch equivalent to its size. An empty folder gives a "Bonk!", while a healthy-sized System Folder gives a "Boom!".

Resize a window and hear the "Chink!" of glass. The bigger the window, the bigger is the glassware.

All these facilities are built into the Finder. Just drop the "Finder Sounds" file into the System Folder and restart. From then on, your Macintosh happily sounds off. In fact, it's sometimes disappointing to use an application and not receive a reassuring "Bing!" every time an icon is clicked.

Finder Sounds likes to have more than one megabyte of memory, and works best on a hard disk. Some configurations don't like it (eg 1Mb Macintosh Plus) and some utilities hate it (eg HierMenus). However, it will work on most "power" systems.

A warning, though. Finder Sounds is not an official Apple product. It isn't officially released, and can only be obtained through leaked channels. However, an ex-Apple USA employee, at the Boston Macworld Expo last August, said that he expects the file to spread throughout the Macintosh community in no time. After all, that's the fun of Macintosh! **MAC**

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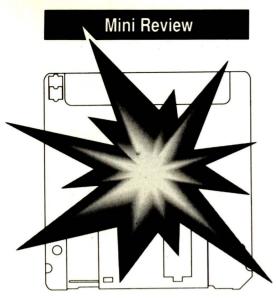
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POWERicons
POWERmenus

By Mark Nichols

POWERicons

If you have all of your applications buried several folders deep, or you are a network administrator, this program may be beneficial. POWERicons allows you to "clone" the icons of applications and place the clone in a more accessible place on your desktop. Once in place, clone icons open applications with a standard double click.

This process is carried out by the POWERicons' Generator. To create a "clone" you do the following: select the application you want and give the clone a name; with the "Set Directory" command, specify which folder, or mounted volume, is to be opened once the application is launched. If you plan to open the folder in which the original application is found you must **rename** your cloned icon.

An additional trick to enhance your clone is to attach existing documents to it that will automatically be opened or printed when the application is launched. The number of documents that can be opened is only limited by the number that an application can handle. Once created, the clones are set and cannot be altered. Any changes will involve moving the original application or attached documents into other folders, and you

Products: POWERicons and POWERmenus
Publisher: Magic Software
Distributor: Keyway
Price: icons-$99, menus-$130

must recreate the clone from scratch.
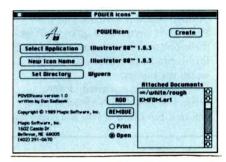
The major benefits of POWERicons are saving time and aggravation, especially on a network. Operators who continuously access the same programs and documents only need to double click on a single icon and all the searching is done for them. Anyone who has spent time digging through folders to find their applications and documents (haven't we all) will appreciate the savings a "clone" offers.
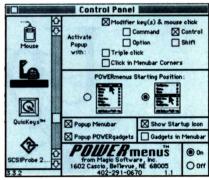
POWERmenus

This utilities package takes the form of a cdev which, once it is placed into your System folder and the machine restarted, allows you to access all of the items in your menu bar, anywhere on your screen, with a simple click of the mouse. For those who use large screens, this could save a lot of mousing around.

The user has a series of options which allow POWERmenus to be customised. The major customisation is how you wish POWERmenus to activate. The choice is between a mouse click with or without a modifier key (command, option, shift or control), a triple mouse click or a single click in the menu bar corners. After a trial of the settings I chose the mouse in combination with the control key. This avoided conflicts with other software.

You receive a subset of utilities called POWERgadgets. These consist of: Alarms – your Mac will sound and bring up a pre-set message at a given time and date; Applications – lists the

currently open and selectable applications (MultiFinder only); Controls – allows you to access any installed cdev; DAs – the same as Controls but for use with DAs; Dialer – accesses an attached modem and calls anyone from the user list of names and phone numbers; Notes – acts as an online notepad; Time – displays current time; and Windows – lists the currently open windows and allows you to select one.

POWERgadgets can be set up to be accessible from the popup menu only, from a "Gadgets" item in the Menubar, or both.

POWERmenus is a good collection of utilities which could save a lot of time and hassle. **MAC**

Shortcut

Review Folder	43221k free on
On Cue review	MacWorld
Shortcut help	Dear II ⌘1
Shortcut with sub menu	MW1-40 ⌘2
Shortcut with sub menu 2	MacWorld ⌘3
	New Folder... ⌘N
	Go To Folder ▶
	Open File ▶
	Find... ⌘F
	Get Info ⌘I
	UnStuff... ⌘U
	Volumes... ⌘U
	Help...
	About Shortcut™...

The sub-menu allows you to jump to a specific menu. Notice the items that allow you to add the current folder, or in this case remove it, since it is already on the menu. Shortcut is also responsible for the free space on your disk being displayed above the disk name.

By Tony Williams

Raymond Lau, the programmer who wrote such gems as SFVol Init and StuffIt has decided to start selling his products commercially through Aladdin Systems, and if Shortcut is anything to go by then we, the users, may have to pay a bit more for his products. But it will be well worth the money.

Shortcut is essentially a new version of SFVol with a load of new features. For those of you who have not used this shareware product it is an INIT that patches the Standard File dialogue box, the box that most software uses for opening and saving files.
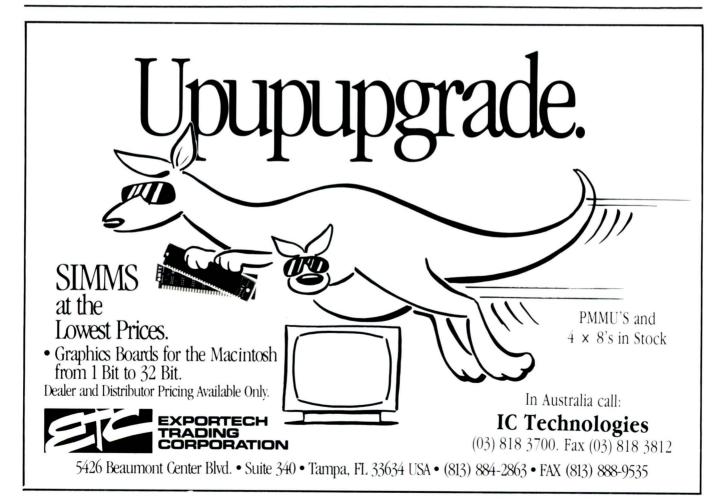
Shortcut, like SFVol, adds a menu that pulls down from the disk name. The first items are the names of all disks connected. The first ten can be acessed using the command key and 1 to 0. Other items allow you to create a new folder, jump to one of up to 20 pre-defined files with only the files for the current application displayed, find files, look at and change the "Get Info"

information, unstuff StuffIt archives and a help system that has to be seen to be believed.

The "Find . . ." menu item brings up a dialogue box that allows you to customise the find. You can elect to find only files openable by the application, to find or not find folders, and even to search inside StuffIt archives if required. You can search for a file by name,

The help screen. The scrolling list is visible at all times while the right hand side displays the help. If you click on one of the items listed under the "See also" you will be taken to that screen. In this example if you click on one of the menu items a small box will appear explaining the menu item.

The control panel. The four buttons at the bottom access four "pages" of different controls.

creation date, modification date or any combination of the three.

The "Get Info . . ." item allows you to examine all the normal information in the Apple "Get Info" box, with the unfortunate exception of the comment field. It also displays, and allows you to change, the creator and file type. It is possible to "Get Info . . ." on a folder
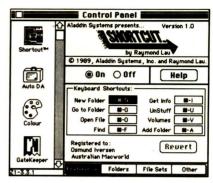
on an AppleShare volume and this then displays the name you used for logging on. It shows the privileges for the folder and, if you are the owner, allows you to change them.

The help system is very good (it is available for purchase by programmers and is royalty free). It has small pop-up boxes for further explanation, hyper links and a small pop-up menu to take you to specific "cards". (See Figure 3).

The behaviour, menu shortcuts and the folders accessed can be changed from the Control Panel. There are four "pages" to the control panel. The first has a button to take you to the help system.

I noticed one small bug when displaying the "Volume" item. When I selected our AppleShare volume, the location overflowed the small box

Note: Shortcut was exhibited at the Boston Macworld Expo last August. We still have not heard of anyone distributing it in Australia.

allocated to display it and the overflow text was not erased when displaying information from another volume. For version 1.0 of a product this is a minor niggle; I had to search hard to find a bug.

If this is the quality we shall see from Aladdin Systems then I cannot wait to see StuffIt Deluxe, a new version of StuffIt, mentioned in the help file for Shortcut.

MAC

Canvas

As the Macintosh becomes more advanced, so does software. In 1984, everybody was impressed with MacPaint. In 1986, FullPaint and MacDraw took over. Then in 1987 came SuperPaint which combined both drawing and painting. Since this time, graphics software has become as sophisticated as the Macintosh itself.

The first version of Canvas was not highly impressive and provided little that was revolutionary (see *Australian Macworld,* July 1988). But version 2.0 is the opposite.

Hiding behind a humble user interface lies an application of great power. Not only does it offer the best features of every paint and draw application before it and adhere to the full range of Macintosh standards, but it also comes in Desk Accessory form with close to the complete functionality of the Canvas 2.0 application.

Form and function

Canvas combines both paint (bitmaps) and drawing (objects). Bitmapped painting takes place within bitmap objects at a resolution of up to 2,540 dots per inch (high-quality typesetting resolution). These bitmap objects can be freely intermixed with normal objects, and edited with the full range of standard paint tools.

All standard drawing tools are provided, plus the famous "Freehand" tool usually found only in PostScript software such as FreeHand and Illustrator 88. This tool enables the creation of complex shapes made of bezier curves, lines and specialised corners. It is excellent for tracing complex shapes.

On the topic of tracing, it can trace any bitmap and produce a straight line or smoothed polygon. The resulting object can then be further edited to provide a high-quality image from an original bitmap.

On the Macintosh II, access to the full colour Palette is provided, along with the ability to edit colours as desired. In fact, it specialises in editing practically every drawing function. For example, the spray can be adjusted for shape and density, arrow heads may be adjusted in size and angle, the pen size can be adjusted two-dimensionally from .003 to 127 point and rulers may be adjusted to any scale and unit.

It also provides PageMaker-like rulers with snap to guides. Rulers may be "torn-off" and placed wherever required within the drawing.
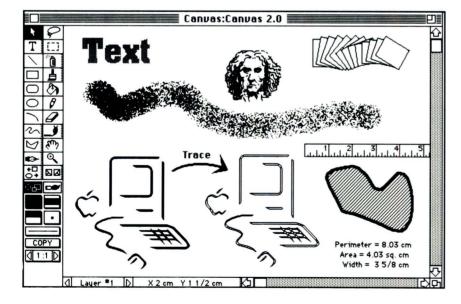
A collection of over 20 different "managers" provides additional control over drawing operations. This includes zoom, text, layer, pen, duplication, alignment, rotation, ink, colour, scale and patterns, to name a few.

The Layer Manager allows the creation of literally hundreds of layers, each of which can be individually named, made invisible, greyed or specially coloured. Specific layers may then be printed or saved to disk.

The Duplication Manager will copy objects multiple times with relative offsets, scales, shades, colours and rotations.

The Information Manager will instantly provide the area, perimeter, width, height and rotation of objects, with the ability to automatically paste this information into the document.

Zooming and reduction is available up to a factor of 32 times. Text blocks can change font, size and

By John Rotenstein

colour with each character, and objects may be scaled, skewed, distorted and rotated at any angle.

Objects may be stored in a Macro format, thereafter appearing in a pull-down menu. These objects may then be included in documents by simply selecting and placing them. This is similar to the 'library' functions of other applications.

Drawings may be saved in standard PICT format, which allows their use in every Mac application. Bitmaps may be exported in TIFF and MacPaint format.

For programmers who want to include graphics in their software, especially with colour, Canvas provides extremely small PICT graphics when compared to SuperPaint. This is due to the absence of a specialised PostScript header.

It is extremely easy to use and sports a HyperCard-like help facility for all tools and operations. The manuals are extremely well-written and provide a step-by-step tutorial and reference material.

Pride and prejudice

Canvas 2.0 fits into the high-end of the Macintosh software market. It competes with such products as SuperPaint 2.0 and Aldus FreeHand. It ridicules MacDraw II in its profusion of features. The only markets in which

Publisher: Deneba Software
Distributor: PICA
Price: $495

it does not compete are colour painting and CAD and Deneba Software, maker of Canvas, has released UltraPaint to address the first of these markets.

In the search for a full-featured drawing/painting application, Canvas 2.0 must rate at the top of the list. The facilities mentioned above are only a handful of those available, yet it is extremely easy to use. When searching for such an application, Canvas 2.0 is highly recommended. **MAC**

FileGuard

By John Rotenstein

File protection has come of age. FileGuard, in this wholly revised version 2.0, offers enhanced protection and a more intuitive interface. It is the best available Macintosh security system, far outstripping the security offered by DiskLock.

To understand its benefits it is worth examining the flaws in Macintosh security. The first flaw is that anybody can get access to a hard disk by booting from a floppy. The files on the hard disk could then be accessed and deleted at will.

Simple security systems (such as Sentinel and SUM Encrypt) combat this situation by encrypting files. That is, the files are encoded and thereafter appear as utter garbage unless decrypted with the correct password. Yet this still does not prevent the files from being moved or deleted.

More advanced security systems (say DiskLock) are capable of blocking access to the disk itself by modifying the SCSI device drivers. In simple terms, it stops the hard disk appearing in the Finder unless the correct password is given. In this way, files could not be deleted.

Unfortunately, this form of protection did not go far enough.
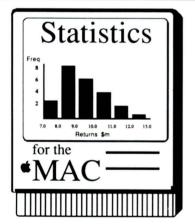
Applications designed for the recovery of data from a crashed hard disk (like SUM Recover) can circumvent the security and rescue a file from a password-protected disk.

The only safe means of security is to lock the hard disk and also encrypt sensitive files. DiskLock provided such abilities, although files must be encrypted/decrypted via a Desk Accessory. The result was a clumsy system which was shunned by users.

The FileGuard difference

FileGuard, since its earliest form, has provided an easy security interface. Whenever documents are created, the user has the option to password protect

them. When next they are accessed, FileGuard appears and demands this password again. All encryption/decryption is handled automatically.

Version 2.0 provides the facilities of DiskLock. That is, the volume itself may be protected.

At startup, FileGuard allows access to the hard disk only if FileGuard is active. When booting from floppy disk, a password must be provided before FileGuard allows the hard disk to appear, much like DiskLock.

It can operate in basic or multi-user modes. For basic operation, protected files are available to all users aware of the correct password. All users can create protected documents.

In multi-user modes, each user is assigned a "logon" identification and password. Access rights can be assigned to each user based on their logon name. For example, fully authorised users may be allowed access to all files, while guests may be allowed only to read unprotected documents. The insertion of floppy disks can be disallowed for particular users, as can the ability to move any icons in the Finder.

Access rights, assigned by a security administrator, enable users to keep personal documents private or to share confidential documents amongst authorised users. This is very similar to security on Unix-based systems.

It is now possible to prevent unauthorised users from deleting other users' documents. Only the security administrator can bypass this, but the affected user will become aware of the change.

The bottom line

The Macintosh was never designed for security. As a result, security has to be patched into the way the Macintosh operates. FileGuard provides the best solution to date.

The plus side is that true file security is now available for safe operation in the home and office. The drawbacks are that FileGuard can occasionally cause a system crash, it can be annoying to continually supply passwords and virus utilities (such as SAM) can dislike FileGuard's activities.

In the current market, FileGuard 2.0 is the best available. **MAC**

Hear Ye! The Ecology and Accounting revolution

Biodegradable Purchase Orders are the seventh wave.

"We are working in times which are revolutionary, much more than the microcomputer revolution of the 1970s. . . Two things seem perfectly clear to me in these dramatically changing times we are living and working. First, our global ecology is preparing for a revolution the likes of which we have never seen before. Second, more than ever, people are awakening to the importance of computerised accounting. . ."

With words like these, Richard Graham, the Managing Director of InfoMagic, aims at ousting both Hawke and Peacock and snatching the mantle of Maharishi-Whoever. To cover all his bases – politics, religion, environment, and economics – a 1990 update of Karl Marx follows with the line "the days of the silk-suited, Porsche/BMW driving, box pushing salesmen are over".

You have to admit it: never before in the history of mankind has accounting aroused such passion, in this case accompanied by InfoMagic's announcement of new Import Manager and Purchase Order modules for the Great Plains Accounting Series.

The ecology connection explains the choice of the name "Great Plains".

Bond University has chained itself to the eucalyptus, selecting the Great Plains Accounting Series to train MBA and Business students – evidently converted by InfoMagic's "Rough Times, Tough Measures" seminars. These are held in Brisbane, Melbourne and Sydney during April. Don't knock it; there would be no management decision tool more crucial than a modern computerised accounting system. A short leap of faith, and you can tie that in with rhododendrons, Frank Zappa, Richard Graham and no-nukes.

The end is nigh! Contact InfoMagic at (02) 975 1044. In Graham's apocalyptic words: "The populace is getting serious. . . the rewards of revolution are high for those who hear the call and enlist early. . . don't *watch* the revolution — *lead* it!"

Apple Computer heard the call. In March, it donated three Macintoshes to the Computer Lab of the Australian Society of Accountants, NSW division.

"And he brought me thither, and behold, there was a man, whose

appearance was like the appearance of brass, with a line of flax in his hand, and a measuring reed; and he stood at the gate." (Ezekiel 40, 3)

Don't say we have not warned you. (The Biblical Great Plain lies south of Galilee.)

Quark XPress 3.0

Due to ship at the end of April, Quark XPress, Version 3.0 adds a pasteboard metaphor and has multiple, retroactive master pages. The product also makes optional the parent/child method of grouping text blocks and adds flexible item grouping. This system gives users the freedom to group objects and then edit or rotate one object within the group without altering the other objects. Rotation of elements is handled on page and can be done in 0.001-degree increments.

Another enhancement is that the Thumbnails view now shows actual representations of the pages, not just page icons. Not only can users rearrange pages within a document in the Thumbnails view, but they can also move pages between documents.

The company said that colour separation capabilities will be included in the package, which will sell for $US795. Neither DesignStudio nor PageMaker Version 4.0 include colour separation capabilities in their $US795 packages, but Aldus offers it as an option.

This upgrade features manual control over trapping, although users can still choose to have the program do this automatically, Quark said. In addition, Version 3.0 offers more kerning, leading, and text alignment controls. A text run-around feature will let users manually or automatically run text around graphics boxes of any shape.

The local distributor for Quark XPress has changed, in name at least. The new contact is: Laser Image Products at (02) 406 0344.

T Legitimised font piracy

From the latest round of product releases, you'd think the world had gone font crazy.

Letraset's LetraStudio and Broderbund's TypeStyler both aim at building display fonts for use by graphics

artists in headlines and advertising copy. Adobe Type Manager does a conversion on the fly of bitmaps to outlines for correspondence-type printing.

Now, from the developers of Fontographer comes Metamorphosis 1.0, for converting any PostScript font into editable outline formats, once again for use by the graphics artist and type designer.

It's kind of cute, actually. Given the ferocity of the font wars and copyright issues, this new trend towards "stealing" someone else's good font design by autotracing it adds a novel touch. A disclaimer in Altsys' press release says: "Since it has been determined in court that commercial fonts are copyrighted intellectual properties, it is illegal to convert a commercial typeface with Metamorphosis in order to sell, redistribute or license those generated files whether as outlines or fonts." Mum's the word.

Altsys knows its business, being the original developer of Aldus FreeHand. Not surprisingly, the major uses for Metamorphosis would be for creating editable outlines in FreeHand or Adobe Illustrator. Any Adobe Type 1 or Type 3 font can be converted.

Despite many attempts, we have not found a distributor for Altsys in Australia. The US contact is (US) (214) 424-4888.

Spinning Heads against Trojan Horse

Melbourne-based Spinning Heads has announced Virex version 2.51 to combat a new Macintosh virus named "Virus Info", an insidious new plague of the Trojan Horse variety which uses sophisticated encryption techniques to elude detection. Virex costs $149, upgrades $19.95. Contact Spinning Heads, a division of OnTheBall Computer Resource Centres, at (03) 696 5058

HP ups warranty

In the process of introducing LaserJet III, Hewlett-Packard also reduced the price of the LaserJet IID and introduced a free 12-month on-site warranty for its entire range of LaserJet printers. Phone Hewlett-Packard (008) 033 821 toll free to congratulate them.

Advancetalk

Melbourne-based Advanced Components and Peripherals has released a range of AppleTalk compatible connector kits and cabling, claimed to be priced 30% less than competing products. Contact: (03) 720 4344.

SAM Version 2.0

Symantec has introduced a significant revision of SAM: Version 2.0. The upgrade addresses the biggest problem faced by antivirus packages: the need for continual updates to accommodate new viruses. The new package, called SAM 2.0 and code-named Orion, incorporates technology that allows users to easily reprogram SAM to intercept and eliminate new viruses, including many viruses that didn't exist at the time of the program's release. Within SAM's Virus Clinic is a new feature called Definitions. When a new virus begins circulating, users will be able to call a Symantec support line and get the name of the new virus as well as related data that is then fed into a dialogue box in Definitions.

Increased security options have also been added to Version 2.0. Users can now prevent others from cancelling a floppy disk scan, instruct the program to always eject infected floppies, or block infected applications from launching. SAM Intercept can also be password locked to prevent it from being tampered with or disabled.

New clone and Trojan horse protection features automatically protect a system, once a virus is identified with SAM, against all variants or clones. Users can also scan any folder or set of folders using a hot-key. This means that files downloaded from bulletin boards, networks, and on-line services can be routinely checked to make sure they are virus-free. Contact: Techflow (063) 55 1988

SPSS finally ships statistics package

Chicago-based SPSS has begun shipping its statistics program for the Macintosh. The $US795 SPSS for the Macintosh was announced in August but held up by development delays. Four optional $US395 modules announced in August 1989 are also shipping. SPSS is offering Computer Associates' CA-Cricket Graph as a $US295 presentation graphics option for SPSS for the Macintosh. Australian distribution is through Hearne Marketing Services, phone (03) 497 4755.

Laser AwardMaker

Also turning to higher quality images is Baudville, the long-established publisher of bits and pieces to assist desktop publishers. Among the bits were AwardMaker, a collection of clip art frames and borders for making diplomas, prizes, awards and the like, used both in corporations and in the education system. AwardMaker has now matured into full laser quality, which apart from the visual improvement also permits easier scaling of the finished art. Techflow has this one.

Distributed communications with TERM

Queensland Unix specialist Q_unix has been appointed Australian distributor for TERM, a leading Unix remote terminal communications package from Century Software. Telecom is already a major user of TERM, which is often used for distributed processing networks, unattended dial-up, and general connections into mainframes and UNIX machines. A Macintosh version of TERM costs $399. Ph (07) 831 8666.

Norton Utilities for the Mac

Peter Norton is a famous name in DOS circles, and has been for almost a decade, ever since he created The Norton Utilities. These handy tools have saved many unwary or unlucky IBM PC users from unintended file deletes, helped to recover crashed hard disks, fixed back up and restore problems, and offered other diagnostics tools.

Now, joining Symantec Utilities in the hard disk maintenance game, Peter Norton has introduced The Norton Utilities for the Macintosh, distributed in Australia by Sydney-based PC Extras. The program was previewed to selected parties as early as November 1988, but has been a long time in coming. Norton claims it is not simply a DOS port, but a program designed specifically for the Mac, optimised for speed.

NUM offers such repair, recovery, and optimization utilities as Norton Disk Doctor, UnErase, Format Recover/File Saver and Speed Disk. Disk Doctor provides 45 types of error checks for restoring data and repairing damaged Macintosh disks. File Saver is said to restore an accidentally reformatted 40Mb hard disk in seconds, versus nine minutes required by other programs.

UnErase can quickly retrieve all erased files, or search "By File Type" for over 40 kinds of applications files or "By Text Search" for text strings, as well as recover partially over-written files. Speed Disk consolidates and prioritises all files, reducing data access time and so speeding performance.

NUM also offers a variety of DAs which include FastFind (five times faster than Apple's Find File); KeyFinder, an enhanced substitute for Apple's Key Caps; Directory Assistance, which enhances the file selector by adding file move, copy and delete functions to any Open or Save dialogue boxes; and DeskLight, an icon to show when disk access is in progress.

NUM works with any Mac system from 4.2 onwards and any Mac from the Plus up. Its introductory price is $175. For further information, phone PC Extras on (02) 319 2155.

Complete graphics studio, courtesy of Letraset

If the graphics market was a horse race, our bet would be on Letraset. The reasons are fairly obvious: while other software companies might watch their sales drop and decide to canter over to greener pastures, Letraset cannot do that if it wanted to. Letraset's main business is supplying fonts, lettering systems and graphic tools to the professional artist. Before software came along, it was doing that very successfully from its art supply stores. Anyone who has heard of the PANTONE industry standard for colour specification, knows a Letraset product. Letraset manufactures and *owns* the

PANTONE system. Now, it has chosen to join, and must continue to stay in, the software game, as more and more of its customers move to computers.

That is why, whenever a Letraset product comes along, you look first at what it is, and then on where it will be in a year's time.

DesignStudio: Where will DesignStudio be in a year's time? It already is in the leading pack of page design and layout products, competing with Quark XPress and PageMaker. (ReadySetGo continues as the product for casual desktop publishers.) On a feature for feature basis, it matches or exceeds each of the other. As of March, they introduced DesignStudio Separator, and annex for producing full-page colour separations direct to PostScript colour imagesetters. Letraset claims this to be the first to separate all elements on the page, including imported TIFF, RIFF, PICT2, and EPS files.

DesignStudio Separator uses the industry-standard CIE colour model for converting RGB to CMYK (if you are a Macintosh graphics artist, you'll understand what the acronyms mean). In performing the conversion, the software shows which displayed RGB colours fall outside the printable range, and provides an option for manipulating the colours accordingly. Professionals would be better off contacting Letraset, so we won't rattle off the many other features which apply. The hardware now supported by DesignStudio now includes Linotronic, Compugraphic, Crosfield and Scitex, and many of their equals, which means that any bureau should be able to accept DesignStudio files.

LetraStudio: Another Letraset product has joined the mainstream: LetraStudio, the display font design software, used to carry a hidden cost, in that only Letraset fonts could be used. For users with a full set of Adobe fonts, that was hardly a temptation. In February, Letraset announced support for both Adobe PostScript Type 1 and Type 3 fonts.

DesignScript: Available in April will also be DesignScript, which is a command language annex to DesignStudio. At a price of $US125 (Australian price to be announced) it is a low-cost solution to automating many DesignStudio procedures. A user which

has his procedures worked out, should save hours on routine formatting. Users can create script files in any Macintosh program that can produce ASCII (pain text) files, or with DesignStudio itself. DesignScript can also be used as an interface to a HyperCard front-end, for creating formatted business documents and charts, for example.

ColorStudio: For overall sophistication, however, the latest offering, ColorStudio, must take the prize. ColorStudio is a kind of ImageStudio on steroids, in 24-bit colour. You can tell instantly that the interface was designed from the viewpoint of the artist. There is, possibly, no other product that does what it does: true colour retouching, calibration, masking, colour correction with realtime preview, a range of special effects and custom tools. So far as we know, it is the only application that matches input colour to the display and then to the selected printer. This has been the weak link when dealing with colour prepress.

Already, ColorStudio has been adopted by high-profile users for creating TV network logos, interactive videos, original animation for film and TV (MTV is a user).

The notable factor is that while each of Letraset's Studioline products has competition, nobody has matched the completeness of its component range for the graphics studio.

Hi-Res PostScript printers from NewGen

Melbourne-based Capricorn Computer has announced the release of Turbo PS/300 and TurboPS/400 series of fast, high resolution PostScript laser printers from NewGen Systems Corporation.

The TurboPS/300 is a 300 x 300 Canon SX-based printer which outputs pages three to six times faster than the Apple LaserWriter II NTX, and up to 15 times faster than other PostScript printers, according to Capricorn spokesmen. This model can be upgraded to 600 x 300

resolution, and this PS/360 model sells for $9,495.

At $10,495, the TurboPS/400 is essentially a higher resolution model of the Canon SX engine, and offers 400 x 400 resolution as well as the same speed advantages of the PS/360. It is also upgradable, the PS/480 model offering 800 x 400 resolution, and costs $14,865.

In addition to supporting AppleTalk, all models offer standard HP LaserJet, HP 7475A Plotter and Epson LQ800 emulations, as well as optional SCSI and Centronics parallel interfaces for those of you still at sea in a DOS environment. Capricorn Computer can be reached on (03) 690 1655.

The Joe Bloggs market

We recently asked Solutions in Queensland what their market focus is, and got this reply from Samantha McCormick: "We are actually aiming at the Joe Bloggs market. You know him, nice chap, small to medium businessman. He bought the computer to streamline his business, he likes to create useful things on it, but he's no expert."

That does not prevent Solutions from picking some real winners for every class of user, it seems. Their latest is A. M. E (Access Managed Environment); Samantha wanted to know if we'd heard of it. Have we ever!

We encountered A. M. E unsuspectingly some months ago, while accessing the network of US *Macworld*. Suddenly, we did not have permission to do a number of things on their AppleShare servers, in folders on their hard disk, nor many other activities which we knew were impossible to protect with Apple's networking software.

A new icon under the Apple menu made us suspicious. "A. M. E." Damn it, this is the first truly secure management software for the Macintosh! Apart from the obvious virus protection facility, passwords and file encryption, A. M. E. offers a user log of activities, control over disk usage and even serial port and printer control, floppy disk insertion security, access privileges to desk

accessories (!) Volume Lock — that is, the option to lock *all* SCSI hard disks connected to your Mac from access, and much more.

At the other end of security, it can also provide true file erase. When you delete a file on a Macintosh, the data remains on the disk; only the file name/pointer is removed. A number of disk recovery programs can be used to resurrect data which the user thought were safely erased. (Have you passed your hard disk to anyone for repair lately? Watch it!) With A. M. E. you can erase the actual data, to meet standards imposed by the US Dept. of Defence.

A. M. E. comes in single user form for $480, in a 5-site pack for $1,465, and the 10-user version costs $2,430. Until we have reviewed A. M. E., we obviously cannot offer testimonials for its claims, but we can say that this is the first time that *US Macworld* has prevented us from breaking through their network as we pleased. Contact Solutions at (075) 395 422.

VideoPaint

Olduvai has begun selling an 8-bit painting and editing program of French origins, developed by the same programming team that developed GraphistePaint. the feature list of VideoPaint is extensive, with special effects including spherisation, blur, smudge, diffuse, contour, Bezier curves, dithering, fractals and more. Stencil and mask tools are included, and the software has colour separation capabilities with a special preview function.

Built-in drivers for popular scanners from Sharp, Microtek and Apple complement numerous import/export facilities, while advanced features include 3-D wire frames, rendering with control over light sources and shades, and indeed an open architecture which allows developers to write special effects using Pascal, C or assembly language. Distributor: Trio Technology.

After Dark upgrade from Pyro?

Berkeley Systems is making one of those cut-throat "trade-in" offers in the US. Owners of Fifth Generation System's Pyro screen saver may "upgrade" to After Dark version 1.1 for $US15 by sending in their original Pyro disk. "We want people to have the best, and that's After Dark," said the president of Berkeley Systems. In a personal letter to us, the marketing department comments in words that you can interpret for yourself:
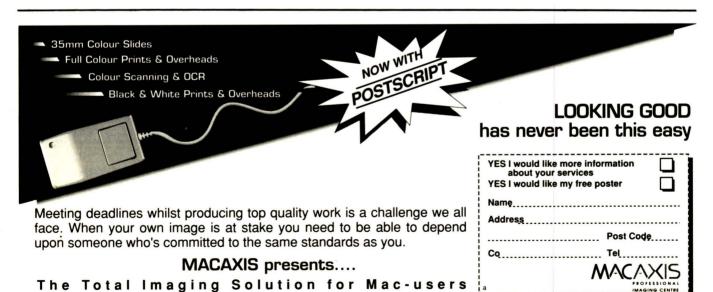
"Dear Mr. Iversen, have you seen Fifth Generation's Pyro 4.0? Here at Berkeley Systems, where After Dark was created, we found the program strangely (how can I put this). . . familiar. It has [he lists a series of features] just like After Dark. If it's true that imitation is the sincerest form of flattery, we've certainly been flattered beyond our wildest imagining."

The US contact is Berkeley Systems Inc, 1700 Shattuck Avenue, Berkeley, CA 94709, or phone (415) 540-5535, but you should try first to see what the local distributor is allowed to offer. Last we knew, the Berkeley Systems distributor was Capricorn Computer in Melbourne; phone (03) 696 2466.

Liquid Light doubles line resolution

American Liquid Light has announced the Verite digital 35mm film recorder, an addition to its line which promises 4,000 line resolution images, compared with 2,000 line

resolution in its standard model. Verite supports 32-bit QuickDraw as well as Adobe Type Manager and Bitstream's 850 scalable fonts. The distributor is TCG at phone (02) 699 8300.

QuickMail 2.2 has embryonic voice mail

QuickMail version 2.2, now shipping, is so much improved that "we should have called it version 3.0", according to Richard Skeie, president and CEO of CE Software. It certainly addresses user requests, along with some real innovation.

A QuickMail NameServer provides users with directory services; on-line addresses and gateways are continuously updated and stored with imported address lists, and available to users through the "Find" menu.

QM Menu adds a mail menu to *any* application, providing the only universal mail integration yet released for Macintosh. You can enclose and send documents from within any application.

QM-QM Bridge allows users with a modem to communicate with any other QuickMail site, without the user having to know or perform the dialling after the recipient's address has been entered once. This, together with QuickMail PC which was released not long ago, extends QuickMail's lead as the most wide-reaching e-mail package for the Macintosh.

QM Recorder works with Farallon's Mac Recorder to record and attach voice recordings to mail messages. No special hardware or software is required to play the messages back at the receiving end.

Administration is better. The administrator no longer needs to manually track users' serial numbers, and he can now access reports of mail usage and mail being stored for forwarding.

Speed has also been improved. (That was necessary.) For the second quarter 1990, CE Software promises XCMDs for HyperCard, Wingz and 4th Dimension, to permit developers to create external commands which interface to QuickMail. Contact Keyway at (02) 316 6599.

TOPS 3.0 — a comeback

The day after the TOPS division gained status as an autonomous company, "the place swarmed with engineers from Apple Computer", according to Larry Preiser who visited Australia in March. If cool [read: competitive] relations had existed between the parent company Sun Microsystems, and Apple Computer, they have warmed considerably after that event. Already, TOPS is emphasising its preferred direction of extending its network solutions for Macintosh by releasing TOPS 3.0 bundled with the e-mail package InBox. InBox 3.0 is a straightforward no-frills messaging system which allows the message centre to reside on a PC, Mac, Sun, VAX or other Unix-based machines provided they are

tied in through the network's file sharing system. The latter permits Inbox to "borrow" the performance and security features of larger computer systems on the network.

We heard comments that TOPS was on the wane in the Macintosh networks market. We have ourselves been critics of its incompatibility with Apple's guidelines in the past. On the other hand, we have never been in doubt that TOPS was the easiest installed, no fuss network for Mac, without comparison. For good measure, it had a superbly uncomplicated interface to file sharing between Macs and PCs, used in IDG's offices for several years here. If only. . . and TOPS 3.0 fixes the "if" by adding AFP (Apple File Protocol) support, usually taken as the criterion that a network product is safe on Macs. TOPS Spool, one of the added benefits of adding TOPS if you have two-three Macs connected to printers via AppleTalk, supports the new LaserWriter drivers 6.0 as well as all previously supported versions. The original file translators (PC to Mac and vice versa) have been replaced by the much more widely recognised MacLinkPlus from DataViz.

The TOPS/Macintosh 3.0 Bundle retails for $439 which includes InBox. The TOPS/PC bundle costs $369, but unless you already have a networking card (FlashCard) in the PC, you'll be up for one of those per station as well. Various site licences are also on offer. Distributor: MicroAustralia at (02) 418 6242.

ATM version 1.2 supports Bitstream fonts

Free to all registered users, ATM 1.2 boasts compatibility with any manufacturer's Type 1 PostScript fonts, including those from Bitstream. Unlike the previous version, the upgrade distinguishes between bold and roman characters on-screen, especially for smaller type sizes.

Also new is the enhancement of ImageWriter printouts from applications, such as Microsoft Word 4.0, that do not support fractional spacing. Ordinarily, these applications produce documents with inconsistent spacing. With ATM 1.2, this erratic spacing disappears. The new version also sports a banner-generating utility that lets users print out large banners on their ImageWriters.

What users will not get with this upgrade is marked improvement in printing 10- or 12-point sizes. Many users were lead to believe ATM would turn their ImageWriter or other QuickDraw printers into a PostScript printer. When they printed documents with 10- and 12-point type, they found this was not the case. Acknowledging this misconception, Adobe plans to exercise more caution in its advertising this time.

The Adobe Type Sets companion products each contain seven fonts and will cost $US99. Registered ATM users can buy any Adobe Type Library font for $US39 each. Contact: InfoMagic at (02) 975 1044.

Flip over this monitor!

Blending together full- and dual-page displays, Radius Inc. has introduced an unusual monitor that physically "flips" between portrait and landscape orientations without the need to reboot software.

The Radius Pivot comes with software that reorganises the desktop after the display has been rotated 90 degrees, repositioning menu and scroll bars and moving icons to replicate their previous arrangement.

The monitor is particularly useful with spreadsheet, graphics, and page layout programs, said Mike Boich, Radius' president. For instance, users can create spreadsheets or charts in landscape orientation and then rotate the monitor and merge them into a text document in a page-layout application.

The Pivot supports most leading Mac applications, according to Boich. "On the Macintosh, almost every

The Radius Pivot monitor

application is used to existing in a window and not knowing from moment to moment what the size and location of the window is going to be," Boich said. "Consequently, it is not that difficult to redraw the windows for each orientation."

The Pivot has a 69Hz refresh rate and offers a 640 x 864 resolution in portrait orientation. The monitor uses several electronic and mechanical innovations. During rotation, a position-sensing device tells a high-speed pixel-rotation engine to reorient pixels for the new orientation. Weights are used to balance the display during and after rotation, and a specially designed magnetic shield isolates the deflection circuitry from the Earth's magnetic fields. Circuitry and cooling vents were also designed to optimise cooling in both orientations.

"This is pretty slick technology," said Greg Stern, assistant editor of *The Seybold Report on Desktop Publishing.* "We have often thought that a full-page screen was a lot of space that was not always well utilised and wished you could switch the configuration and put it sideways. It never really dawned on us that someone could make that happen actively, with the screen being redrawn right in front of your eyes."

The monitor is available with interface boards for the Mac SE/30 and Mac II family, and comes in a 2-bit version that offers up to four shades of grey. An upgrade kit allows users to turn the monitor into a 4-bit display with up to 16 shades of grey.

Boich said Radius is working on a colour version of the Pivot monitor. Contact: InfoMagic (02) 975 1044.

Clip and edit training tool

First there was cut and paste. Now there is clip and edit.

That progression of moves on the Macintosh comes by way of Farallon, which recently introduced a package called Mediatracks, designed for the creation of computer-based training materials. Mediatracks is the result of a merger between two existing technologies pioneered by the company: ScreenRecorder and MacRecorder. ScreenRecorder is a "camcorder" that is available at any time as a desk accessory and records the desktop motions of any application (except those that write PostScript to the screen) onto a tape stored on disk.

Mediatracks works by replaying programmers' on-screen moves and voice comments alongside whatever video material is attached to the Mediatracks "time line" of on-screen events. "Everything is synchronised and timed the way it occurred in real, human time," says product manager Barbara Tien. The older ScreenRecorder 1.0 product did not have the ability to append video and voice inputs.

Making presentations that play in real time, however, requires the use of built-in compression algorithms that squeeze multi-megabyte graphics files into compact memory blocks. A 4-to-1 sound compression, for example, would store two to three minutes of screen activity and narration into an 800K floppy disk, according to Farallon.

Mediatracks consists of several components: a module of ScreenRecorder 2.0 software, a Multimedia Pack module that incorporates sound using Apple's HyperCard technology and an upgrade package for users of Farallon's ScreenRecorder 1.0 software. The minimum hardware configuration for Mediatracks is a Mac Plus with 1Mb of memory.

"This product is targeted at the business-content expert who had trouble justifying a $US15,000 purchase of a Mac IIcx with an attached [compact disk/read-only memory] player," said Farallon marketing vice-president Tom Reilly. "The comparable setup on a Mac Plus would cost $US1,500," he said. The company intends to ship in late April a Macintosh CD ROM version of the Mediatracks Multimedia Pack. Contact: NetComm Australia (02) 888 5533.

Real-time video in a window, in colour

From RasterOps, for sophisticated use, comes a new video capture and display board that allows realtime video to be displayed in a window on top of a live application. Colorboard 364 permits colour video signals from a (PAL) TV source to be displayed and modified in realtime 24-bit colour on a non-interlaced Mac screen.

The live video appears in a window that can be sized, stretched, and moved around the desktop. The video does not cause interruption or slowing of the application that is running concurrently, because the board uses its own memory

and the same processor as the Colorboard 264. MultiFinder is not required for the system, and the board occupies a single NuBus slot.

The board comes with control-panel software that allows users to select pixel depths and virtual-screen sizes from 640 x 480 to 4,096 x 521 pixels. The program also permits hardware pans and zooms. Additional software allows frame grabbing, image cropping, the inverting of colours, image rotation, and colour editing with the board.

In Australia, the RasterOps range is handled by Mitsui Computer, and the 364 PAL version will cost $3,500. More good news for Australian users is that the SFX version comes in PAL, turning the Macintosh effectively into a studio mixer. Now all we want is an accelerator and perhaps a PAL encoder box. Larry Haas from RasterOps couldn't comment on that one, but he didn't say no. . .

Publish It Easy — even simpler than Publish It!

While we're still trying to complete our review of Publish It!, one of the most promising entry-level desktop publishing programs to see the light in 1989, its publisher has gone one better. Timeworks plans to release a new version of Publish It! aimed at users who have never used a desktop publishing package or are only occasional users.

"It's meant for people who have been using a word processor, but want to do a little bit more," said Victor Schiller, VP of research and development.

Called Publish It Easy, the program has a number of text tools not normally found in a desktop publishing program, Schiller said. For instance, the program has a built-in spelling checker and thesaurus. The spelling checker is less powerful than the one in Publish It! 1.2, however.

Publish It Easy has many of the same features as Publish It 1.2, and adds some that make it easy for new users to navigate around the program. For instance, the program has a floating toolbox and icons for jumping from page to page. A floating-library palette lets users easily change the formatting of text and graphics.

The program imports text from the original MacWrite, Microsoft Word 3.0 and 4.0, Works, WordPerfect, and WriteNow. Unlike its more powerful counterpart, however, it cannot be used

to create custom-size pages.

Publish It Easy will import bit-mapped, PICT and PICT2, Encapsulated PostScript, and black-and-white TIFF files. It has 33 paintbrush shapes and 64 pen sizes. Graphics can be converted from bit-mapped to PICT and back. Contact: Dataflow Computer Services at (02) 331 6153.

Proof of our bad grammar

Grammatik Mac provides a proofreader on your Mac. It can proof documents either in text files or MacWrite, MacWrite II, Word, WordPerfect, WriteNow or FullWrite files. It checks your grammar, word usage, style, sentence length and complexity. It offers on-screen suggestions, and you may output a copy of your original file with the suggestions embedded into the text. If you think you need it, contact:

Logo Computer Centre at (02) 819 6811.
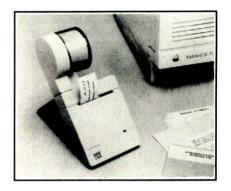
I tried it and threw it out after it suggested two many changes. I'm sure I don't write that many sentences bad.

Label printers, label printers everywhere...

We have received numerous press releases from a range of sources offering the Seiko label printer with various badges on the front. Stop, please. (Not really — we are merely pointing out that someone must be handing out distributor badges as if they were appointing local retailers.)

The latest press release came from Try & Byte, and offered it as the CoStar LabelWriter. It includes a DA to print and manage mailing lists, as well as clip and paste from your letter. It also offers the ability to print bar codes. CoStar is

CoStar LabelWriter

apparently developing a driver "AutoLabel" that will automatically extract the addresses from letters and print them on a label while the body of the letter is printing on your system's main printer. Try & Byte (02) 906 5227.

MAC

32-bit colour in action

By Peter Green

Athough these are early days, there are several video boards, a little rough around the edges perhaps, but quite capable of capturing, manipulating, displaying, and outputting Mac images to video.

I set out to find what I could do with a RasterOps 324 board, a Torch RSVP, a Mass Micro ColorSpace II and ColorSpace FX, and a Truevision NuVista and VIDI/O encoder. I was mostly concerned with their agility when connected to TV camera and studio equipment, which is unfair, since this is only one of the many purposes these boards serve. Some double up as standard 32-bit colour display boards for the monitor, for use with colour imaging software.

New frontiers

When Apple opened the Mac it was like opening Pandora's box. The closed and safe world of the black and white Mac is giving way to as many options as there are colours in the System palette. Release version 1.0 of 32-bit colour QuickDraw is available, and yet *Australian Macworld*'s extensive software library possesses no 32-bit paint or draw application to test the 32-bit capabilities of video boards. That does limit one's scope.

Four steps to desktop video

There are four steps to video on the Macintosh: *image capture*, *manipulation*, *display* and *output*.

(1) Video image frame grabber cards are designed to capture images from TV cameras and video recorders, or from some of the flatbed scanners used in desktop publishing. This is achieved by converting analogue video signals into digital information which is stored either in the board's memory or passed through the NuBus to main memory. Image capture techniques may range from multiple-pass systems which take several seconds to build up a single frame, through to systems that can capture and display moving video images in real time.

(2) Grabbed images can be manipulated using a combination of hardware and software. Changing the size and shape of images and overlaying live video over Mac graphics is most easily done in hardware. Colourising, retouching and other paint functions can be handled by a variety of software such as PhotoMac or PixelPaint Professional.

(3) Displaying 32-bit colour images on the Macintosh screen becomes essential when working with 32-bit software, and requires new video display cards. For desktop presentations it is essential to be able to combine Mac and video images on the one screen; a bonus would be the ability to run a display screen for the audience in addition to a control screen for the presenter.

(4) Outputting Mac images to videotape or for TV studio use may be the dream for some Mac owners, but a necessity for others. Output devices must be able to convert non-interlaced digital Mac images into analogue RGB or encoded PAL video for use in the Australian TV system. The more sophisticated boards provide a video overlay option, and can be timed or "genlocked" to an external video source.

The equipment supplied

The video boards provided for testing offered a reasonable variety of features to cover the desktop TV and desktop presentation markets. **RasterOps** supplied separate frame grabbing and display video boards. The RasterOps 324 board had separate inputs for RGB, composite, and S-VHS video which are controlled by their True Capture software. RasterOps also supplied a high resolution 224 board to run their two page colour monitor.

Torch provided the RSVP video input/output card and separate encoder/decoder card with "Grabber" DA software. Each RSVP card is able to digitise and store 8-bit RGB colour images in real time. It is also able to output real-time 8-bit Mac images to PAL RGB. The optional corporate quality encoder/decoder board is a useful addition when working with composite video. Torch handles 24-bit video by running three 8-bit cards in parallel.

Mass Micro provided the ColorSpace II input/output card and ColorSpace FX image manipulator companion card, as well as "Desktop Video" and "PAL Digitizer" DAs, Mac TV and XCMD software. The ColorSpace II lacks on-board memory and so digitises incoming composite video using a multiple-pass technique. This enables the ColorSpace II to build up a 32-bit frame from a stationary video image. 8-bit Mac images can be

A new crop of boards makes desktop video attainable, if not child's play

Working with captured images such as these from the TV-series Gilligans Island is now well within the grasp of the owners of a Macintosh, and the very ease of the process may spark another round of copyright dilemmas. Contrary to early "public domain" bitmap scans from Playboy Magazine, these colour quality images are capable of commercial exploitation, and hence likely infringement of copyright.

Westerly winds and cups of tea: earthly risks when installing video cards

Dry westerly winds and low humidity during the tests made the threat of damage by static electricity quite real. The best ways to beat static are to stay earthed at all times, and raise the relative humidity. Most installation guides recommended unplugging the Mac II for five minutes to allow any charge in the power supply to dissipate before installing boards.

Next they advise you to touch the power supply regularly so as to earth yourself when installing the boards. The problem with this advice is that the power cable on Australian Macs carries the only earth reference for the power supply, so unplugging it removes any chance of the power supply draining to earth, or you earthing yourself on the unconnected power supply. These instructions may be appropriate for US, but common sense and Apple Australia both recommend you keep the Mac earthed through the power cable at all times.

Powering down the Mac for five minutes, raising the room humidity by installing a steaming hot cup of tea, spraying the carpet with a little water, and working in bare feet all help. The penalty for ignoring static precautions can be the total destruction of the video card and half of your Mac!

Installation of the NuBus cards was straightforward. Video drivers, Control Panel devices, and system INITs are duly loaded into the ever expanding System folder. One of the minor miracles of the Mac and NuBus is its ability to identify and communicate with cards without having to use switches or jumpers, as in the DOS domain. Most of the video cards were supplied with Control Panel Devices, (cdevs) System INITs and desk accessories.

While these devices usually simplify board installation, there were occasional INIT conflicts between boards which caused system crashes. Fortunately for most, this problem only occurs when you have several video boards loaded into one machine, a situation which may occur during live presentations and conventions where facilities are shared. The best example of this could be seen at any of Apple's recent multimedia presentations where competing suppliers tried to run their presentations from a single Mac. Another small annoyance was that after changing monitor configurations and resolutions in the Control Panel, the Mac had to be re-booted twice so that monitor changes could be fully implemented by the system software.

output as real-time composite PAL video with the ColorSpace II board. The ColorSpace FX has ample video memory and high speed AD/DA converters enabling it to input and display moving colour video images at 25 frames/second. The ColorSpace FX board can also integrate incoming video with Mac graphics on a single computer screen for presentation purposes.

Truevision supplied the NuVista 4Mb video input/output card, VIDI/O encoder/decoder, and NuVista capture software. The NuVista inputs and outputs RGB PAL video, contains high speed AD/DA converters and can be optioned with 2-4Mb of video memory. The stand-alone VIDI/O encoder/decoder is designed to convert between composite video or S-VHS, and RGB PAL video.

To run it all, Apple supplied a 4/40Mb Mac II with System 6.03 and 32-bit Colour QuickDraw. Testing was carried out at North Sydney College of TAFE using Marconi Mk 8 cameras, Grass Valley 1600 series Vision mixer, Cox coders and Tektronix Sync Pulse Generators and wave form monitors. Recordings were made on Sony 5800 series 3/4-inch U/Matic video cassette recorders.

1. Inputting the images
When inputting PAL images into the Mac, you are faced with two basic

choices: composite video or component video? With composite video the black and white, colour information and synchronising pulses are all mixed together into a single serial signal. Component video provides RGB and syncs as separate signals travelling in parallel. Equipment that converts component video to and from composite video is called the encoder/decoder.

While composite video is most common in all areas of TV, it suffers from two serious limitations. During encoding, the resolution of the blue and red channels is reduced to about one-fifth that of the green channel, and a complex timing relationship between colour and synchronising information is created. S-VHS partially encodes the RGB signal, keeping colour and luminance information separate. This improves the resolution of the red and blue channels.

The frame-grabber grabber boards provided ways of inputting component or composite video. The ColorSpace II board provides both composite input and output from RCA sockets and RGB input and output through a

The Macintosh is the ideal accessory to add to this Television Production Studio. Once genlocked, the Mac is able to grab and display near broadcast quality images and graphics.

multi-pin connector. The ColorSpace FX board is able to input PAL RGB directly from three software selectable inputs, outputting RGB direct, and composite video via a jumper cable through the ColorSpace II board. The RSVP board is strictly an RGB-in/RGB-out board. Encoding and decoding is achieved with a companion Encoder NuBus board, which provides three composite inputs and two composite outputs. The NuVista board is also an RGB-in/RGB-out board. NuVista offers a free standing encoder/decoder box called the VIDI/O, which provides conversion between S-VHS RGB and composite video. The VIDI/O also has adjustments for chroma amplitude and subcarrier phase.

2. Grabbing video

Many tasks, such as desktop publishing, use video grabber boards to capture still single frames. Here, the emphasis is more on image resolution and colour quality than on capture speed. The ColorSpace II card is good for this application, using multiple passes to build up a video image. This saves the cost of high speed video memory on the board, and permits the capture of 32-bit images. The disadvantage is that the image scanned must be stationary during the capture sequence. The RasterOps 324 board featured real-time single image capture in both 8- and 32-bit mode.

Grabbing a succession of moving frames is a requirement of animation and video production. The RSVP board has real-time frame-grabbing which can be set to capture multiple 8-bit images of reduced size. Three RSVP cards must be used in parallel for 32-bit capture and display. The ColorSpace FX board has a full complement of video memory, and was able to grab, digitise and display live video on a computer screen in real time.

The frame-grabber software for each board had some provision for manipulating the contrast, size and colour of the image to be grabbed. "Capture" software from NuVista offered a choice of screen resolutions and pixel depths, as did the "PAL Digitizer" from ColorSpace, while "Frame Grabber" from RasterOps permitted sophisticated alteration of

greyscale values or gamma manipulation of the RGB input, including negative-to-positive inversion. Grabbed images were stored on the hard disk in a variety of PICT formats for use with paint and layout software.
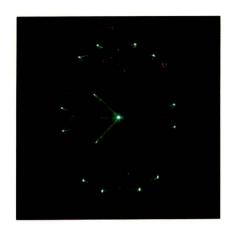
3. Manipulating images

Having large quantities of video memory on a board provides opportunities to do much more than just play with colours. The NuVista card enables you to pan and zoom images output by the Mac as PAL or high resolution component video. The RSVP board was also able to pan and zoom a grabbed image. This feature is most useful for retouching fine details, and for cropping or reframing the captured image. For the truly adventurous there is a programmer's guide for the RSVP board which gives experienced C programmers access to pan, zoom and other routines that are controlled by the TMS320C25 Digital Signal Processor.
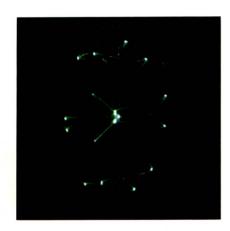
The ColorSpace FX board has a two-dimensional digital production effects unit which is able to dynamically alter the size and shape of live video frames. In its simplest form you can display live video in a window on the computer screen while using any other application. Alternatively, presentations can be dramatised using rollovers and spinouts as transitions. While the FX board can be programmed in C or MPW, it also provides HyperCard XCMD stacks with the majority of commands controlled by buttons. These boards are intended as building blocks of a Mac-based video production environment which will include control over laser disks and video recorders as well as dedicated Mac applications and hardware. The immediate use for such an integrated controller is as a live multimedia presentation tool at conferences and exhibitions.

4. Keying

Electronically combining Mac screen images with incoming video so that the two appear on the same screen can be achieved using the keying software supplied with most of the video boards. This feature is especially useful for point of sale interactive

Colour bar test signals displayed on a vectorscope are used to test the colour accuracy of video equipment.

This is the result of passing a colour bar signal through one of the video boards. The signal shows errors in both hue and saturation. These are only of concern in full broadcast quality productions, they are quite acceptable for corporate quality production.

touch screens. Then, Mac is the main production control centre which supplies and controls all displayed vision and applications. When the Mac is used in a TV studio which has a dedicated vision mixer with in-built keying facilities, the need for Mac-based keying diminishes.

The ColorSpace, RSVP, and NuVista cards all offered keying or overlay software, along with what *they* call "genlocking". By this they seem to mean synchronising the Mac to a PAL video input so that the two can be displayed on the video board's monitor, rather than synchronising and timing the *output* of the Mac and associated video boards to a vision mixer.

Genlocking synchronises two or more video signals by providing a colour composite video signal from a studio sync pulse generator to the card in the·Mac. (An article explaining genlocking will be coming later – Ed.)

Briefly, true genlocking synchronises two or more video signals by providing a colour composite video signal from a studio sync pulse generator to the card in the Mac. (There will be an article explaining genlocking in a future issue – Ed.)

In a TV studio the Mac is just another video source, rather than the centre of attention. To be regarded as a real video device, it has to conform to the conventions of TV, including being timed into a vision mixer. All of the boards tested with genlocking options were able to synchronise to incoming video without effort, but only the NuVista and VIDI/O box were able to provide a timed synchronous output to a vision mixer.

This is because it supplied easily accessible horizontal line time and subcarrier phase adjustments. The ColorSpace FX board came close by offering a DA with sub-carrier phase adjustment for incoming video. All of the boards have the necessary timing hardware required for full genlocking – they merely need to provide a DA which gives the user easy access to line timing and subcarrier adjustments.

5. Displaying the images

Using the video cards in either the presentation or TV environment requires the use of at least two monitors, one for displaying the video card's output, and the other for the desktop and application controls. The RasterOps 224 display board and two-page monitor provided full 32-bit colour image displays. RasterOps also has a low cost video driver board which will deliver 32-bit colour to the standard Apple monitor. Still 32-bit images could be displayed on PAL monitors using the NuVista board. Three 8-bit RSVP boards in parallel were needed to output 32-bit still images.

Macromind Director was used to replay 8-bit colour animations through the boards for use with a vision mixer

and recording to videotape. Director is able to simultaneously support multiple video screens, and its demo animations are good tests of colour and replay speed. The RSVP, ColorSpace II, and NuVista cards were able to output Director images to videotape at full speed without a problem, when set to 8-bit colour. When the NuVista card was set to 32-bit colour, a palette conflict occurred which prevented colour cycling in the animations. Only the NuVista card and VIDI/O coder combination was able to provide a correctly timed and phased output through the vision mixer to videotape.

Choices, choices: a board for all seasons?

Choosing the "best" video board is a bit like trying to choose the best printer. The answer depends on what you need it for, what you can afford, and what other facilities you have to go with it. I was able to test the boards in conjunction with several million dollars worth of broadcast quality video production equipment. In this environment, the boards that integrated the best as production tools in terms of genlocking and usable output were the NuVista and VIDI/O combination. Strictly speaking, the result was not of broadcast quality, as the VIDI/O coder has a bandwidth limit of 3MHz.

The RSVP, NuVista and ColourSpace FX cards can provide flicker-free broadcast-quality images – but only with the aid of hundreds of thousands of dollars worth of professional broadcast equipment.

If your aim is live presentation output to a video projector or dedicated screen, then the ColorSpace FX seems to me the preferred presentation tool. It enables you to combine some very fancy video effects with Mac graphics on the one video screen. If your output is to S-VHS or U/Matic videotape then the RSVP and ColorSpace II boards will provide you with image quality that exceeds your recording medium.

If your goal is to input images from a domestic composite video camera and output Mac graphics onto domestic/corporate videotape then the ColorSpace II board and RSVP board with coder seem good value for money.

The least expensive option is to buy a 32-bit video output card for your present Mac colour monitor and a 45Mb removable disk drive. Armed with these two tools you can find a video processing bureau that is equipped with expensive cameras, recorders and video boards. Later, you can look at adding a frame-grabber card such as the RasterOps 324, or upgrading to a combined input/output board as the need arises.

Desktop TV may be in its infancy, yet it already offers usable video production facilities at one-tenth the cost of existing broadcast technology.

MAC

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5

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☐	**2.** DEC VAX	_____	_____
☐	**3.** Sun/Apollo	_____	_____
☐	**99.** Other (specify)	_____	_____
		_____	_____

Please complete the following information before mailing

4. Does your company own or lease any mainframe computers at this location? *(indicate quantity below)*

		Existing	Plan to buy
☐	**1.** IBM	_____	_____
☐	**99.** Other (specify)	_____	_____
	_____	_____	_____

5. Does your company own or lease any minicomputers at this location? *(indicate quantity below)*

		Existing	Plan to buy
☐	**1.** IBM	_____	_____
☐	**2.** DEC VAX	_____	_____
☐	**3.** Sun/Apollo	_____	_____
☐	**99.** Other (specify)	_____	_____
	_____	_____	_____

6. Does your company have or plan to buy any of the following types of personal computers or microcomputer systems at your locations? *(indicate quantity below)*

		Currently own	Plan to buy within 1-12 months
☐	**1.** Macintosh 128/512	_____	_____
☐	**2.** Macintosh Plus/SE	_____	_____
☐	**3.** Macintosh SE/30	_____	_____
☐	**4.** Macintosh II/IIcx/IIx	_____	_____
☐	**5.** IBM or compatible	_____	_____
☐	**6.** Sun/Apollo workstations	_____	_____
☐	**7.** Other (specify)	_____	_____

7. Please indicate your involvement with each of the following types of personal computers or microcomputer systems *(check all that apply)*

If you have no involvement with any of the below, skip to question 8.

		Macintosh	Software	Networks & Peripherals
A.	Approve purcahse	A. _____	A. _____	A. _____
B.	Develop/Manufacture	B. _____	B. _____	B. _____
C.	Evaluate/Select vendor	C. _____	C. _____	C. _____
D.	Own one	D. _____	D. _____	D. _____
E.	Own two or more	E. _____	E. _____	E. _____
F.	Purchase or acquire	F. _____	F. _____	F. _____
G.	Establish specifications	G. _____	G. _____	G. _____
H.	Recommended to others	H. _____	H. _____	H. _____
I.	Sell	I. _____	I. _____	I. _____
J.	Train people to use/or provide support	J. _____	J. _____	J. _____
K.	Use	K. _____	K. _____	K. _____
L.	No involvement	L. _____	L. _____	L. _____
Z.	Other (specify by name and quantity)	Z. _____	Z. _____	Z. _____
		_____	_____	_____

8. Do you recommend, buy, specify or approve microcomputers, software, and/or peripherals?

☐ Yes   ☐ No

If yes, please indicate for how many Macintosh personal computers you have this involvement. (check only one)

☐ **A.** 1-3	☐ **D.** 20-49	**G.** 500 +
☐ **B.** 4-9	☐ **E.** 50-99	☐ **H.** None of the above
☐ **C.** 10-19	☐ **F.** 100-499	

9. How many people are employed by your entire company? *(check only one)*

☐ **A.** 1-3	☐ **E.** 100-499	☐ **I.** 5000-9999
☐ **B.** 4-9	☐ **F.** 500-999	☐ **J.** 10,000 or more
☐ **C.** 10-24	☐ **G.** 1000-2499	
☐ **D.** 25-99	☐ **H.** 2500-4999	

GAME, *SET* and MAC!

Super Hang-On

My favourite part in George Orwell's lost (but recently rediscovered) novel *Motor Farm* was when the baby Volkswagens chant in unison, "Two wheels bad! Four wheels good!". The humans at Data East have different ideas. All automobile racing games for the Mac released so far have put you in the driver's seat of a car. Enter Super Hang-On, a motor-cycle racing game for the Macintosh based on the arcade game of the same name.
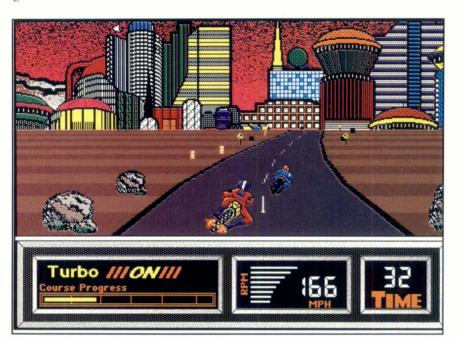
Controlling your bike is easy: you use your mouse for left-right movement, button for acceleration and keyboard for braking and turbo-charge. Hanging-on (despite the name) is no problem.
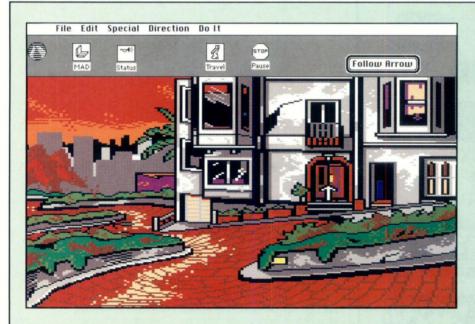
There is nothing very complex about Super Hang-On, yet everything seems to be there. For instance, although you do not actually compete against other riders for a place, there are other riders which serve as obstacles. Similarly, you can choose from three background scenes that will appear on the horizon as you race, to add variety.

It comes complete with five courses. In addition, there is a substantial Course Builder application. The Course Builder is one of the best features of the package, and allows you to design simple racetracks with a range of corners and slopes.

The game graphics are reasonably good, even in black and white, which does not seem to be the current trend in Mac games. The Macintosh version of Super Hang-On may not quite match its arcade counterpart, but it does provide good competition to the current spate of Macintosh racing games.

Super Hang-On

Manhunter 2: San Francisco

"Manhunter": it sounds scary. The premise is simple: the aliens that terrorised you in "Manhunter: New York" are back. What, you have never heard of that game? You have never even seen it reviewed in "Game, *Set*, and Mac!" either? OK, you are right! So why are we looking at a sequel before an original? Well, the original Manhunter has not been released for the Mac in this country yet. But it's coming. . .

Back to the sequel! Where were we? Ah, the aliens! It is the year 2004 and the aliens have taken over command of San Francisco. Today, neither the San Andreas Fault nor the AIDS epidemic is San Francisco's greatest fear. Rather, it is the aliens and their servants. This hired help mainly take the form of killer robots, but there are several humans in their employment, including you. The player is, of course, an elite manhunter

Manhunter 2: San Francisco

By Darren Challis

King's Quest Series

The King's Quest adventures have been best-sellers on other computers for six years now. They are finally being released for the Mac. So far the first three (of four) are out. These are King's Quest: Quest for the Crown; King's Quest II: Romancing the Throne; and King's Quest III: To Heir is Human. Still missing is King's Quest IV: The Perils of Rosella.

Brief synopses are in order. King's Quest I puts you in the role of Sir Graham. Your quest is to search for three magical treasures for the Good King Edward (no relation to Prince Edward, I believe). Along the way you will battle many evil creatures (which are, as you know, an essential part of every good fantasy adventure).

At the start of King's Quest II, you have been elevated to King Graham, but alas require a Queen for companionship and to provide you with an heir. Achieving this requires yet another quest.
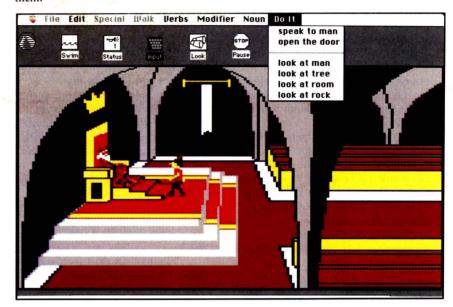
In King's Quest III you are a totally new character: a young lad called Gwydion. Gwydie (as his better friends call him, of which he has none) is a slave of an evil wizard. Gwyd (as his best friends call him, and he has even fewer of them) must attempt to escape the wizard and try to discover his real name and identity (if that isn't obvious enough from

the game's subtitle).

All games share an identical method of play, which is more similar to Gold Rush! than Manhunter 2 in that they do possess a text parser. The graphics seem to be a poor translation from another computer system, and may require time or squinting if you intend to get used to them.

King's Quest Series

Sierra recommends that each Quest be played in the correct order, but that is not really necessary. Which Quest is the best? If you are to choose one, I would make it the second sequel (that is, the third volume). It benefits from a larger play area, self-mapping features and the ability to dabble in magic.

("personhunter", should you prefer). Your mission, should you decide to accept it (and believe me, you have little choice) is to pursue renegade humans. Yet you might soon decide to turn against your enemy masters...

Manhunter 2 is described as another "3-D animated adventure game", and as such is reminiscent of Gold Rush! (G, S, & M!, February) or the King's Quests (reviewed above). But while Gold Rush! and the Quests have limited text parsers, Manhunter 2 has none at all. You rarely have to type whilst playing this game, you instead control everything with the mouse. Believe it or not, I feel that no text parser, in this case, is better than a limited one. Working with the simplistic two to three word parser of games like Gold Rush! can be irritating. By the way, the game also includes several arcade sequences to provide you with a break from adventuring.

A nice feature is the MAD. No, this is not a political science term (as in "Mutually Assured Destruction"); rather MAD stands for Manhunter Assignment Device. This little black box that you pick up at the commencement of the game allows you to receive information about other characters as well as to track them. To follow someone you utilise on-screen overhead maps of the Bay city — an attractive touch.

Unfortunately, Manhunter 2 seems to suffer from the same graphics fate that all the Sierra 3-D adventures do. Although the colour graphics are well planned, they seem a little too blocky for my liking. The black and white graphics are more inferior still. If you can get used to this shortcoming, hunting for men in San Francisco might become even easier and more enjoyable than that city's traditional notorious reputation would have us believe.

Where to buy

Super Hang-On
Price: approx. $US30
Publisher: Data East
Distributor: TBA
Compatibility: Plus-IIx (16 colours)
Copy Protection: Key disk; HD Install

Manhunter 2: San Francisco
Price: $59.95
Publisher: Sierra
Distributor: OziSoft
Compatibility: 512e-IIx (16 colours)
Copy Protection: None.

King's Quest Series
Price: each $49.95
Publisher: Sierra
Distributor: OziSoft
Compatibility: 512e-IIx (16 colours)
Copy Protection: Key disk.

MARKET WATCH

NeXT rollout in Europe; two machines to Australia

To the strains of Mozart and a duet of man and machine, Steve Jobs unveiled the NeXT Inc workstation in front of a British audience in February and promised availability in other European countries later in the year.

The launch - at the London Palladium, a West End theatre with a long tradition of star-studded spectacles - lacked the dry ice, laser light show, and loud rock music of the original launch in San Francisco but it still provided an effective platform for Jobs to propound the NeXT gospel.

The innovative Unix workstation will be sold by Businessland, just as it is in the US.

Non-British developers can buy NeXT workstations from Businessland UK, but the company said it will not be selling to end users in other European countries because of its policy of not selling products unless it can support them.

During his 11/2 hour presentation, Jobs teased his audience with tantalising glimpses of what NeXT will be offering later in the year. He demonstrated a spreadsheet produced by Informix's Wingz that had been sent via electronic mail along with voice annotation that prompted the reader to select different assumptions and view the results.

"Wingz will be shipping in the next few weeks and by the end of the year, we will have three spreadsheets, all of which will offer voice annotation," he said.

A colour board will be available for the NeXT cube later in the year, Jobs said, but he declined to say exactly when. "We think colour market is moving to 24 bits per pixel with 8 bits for control information because that is what you need for desktop publishing. The CAD market is also going to need that to be able to do full colour rendering," he said. "With 8-bit colour, people complain that it is too slow so 24-bit needs an accelerator. You will see some pretty amazing things later this year."

He also hinted at more powerful machines in the future. "Take a look at the 68040. It is faster than any RISC processor and can do 100mips," he said. "Of course, that is a MIPS-centric view and what matters is overall system throughput. That's what mainframes learned long ago.

"We are looking at multi-processors in the labs," he added. "Mach [the NeXT operating system] is the preferred version of Unix for multi-processing and that's one of the reasons why we choose it."

Commenting on IBM's announcement that it will offer NeXT's NeXTStep as one of two user interfaces on its AIX machines, Jobs said the deal means a lot to software developers and provides a safety net for users.

Jobs rounded out his presentation by demonstrating the NeXT cube's music capabilities. Playing alongside Rodney Friend, a violinist and Concert Master with the BBC's Symphony Orchestra, a NeXT workstation gave a virtuoso performance of a piece by Mozart. "What you can hear has not been recorded. It is created one tenth of a second before you hear it using precise mathematical formulae," Jobs said.

"We have worked very hard to make sure that prices are as aggressive in the UK as the US," Jobs said. "We believe that pricing product at 30% to 40% more in Europe is not a practice for the 1990s."

The starting price in the UK for a system comprising the NeXT cube, 8Mb of memory, Megapixel monochrome display, keyboard, mouse, 256Mb read/write optical disk, 40Mb accelerator drive and bundled software is £6,495 ($14,700). Prices rise to £10,995 ($24,887) for a server configuration with a 660Mb hard disk in place of the accelerator drive. The cheapest system available, for use as a network workstation, excludes the optical disk and costs £4,995 ($11,306).

Educational establishments will get a 20% discount on these prices, similar to the discount offered in the US.

No clothes?: Steve Jobs and company were treated like royalty when they introduced the NeXT, Inc workstation 18 months ago, but today, some in the corporate world are beginning to feel the emperor has no clothes, according to Computerworld (US).

The NeXT workstation has proved to be a tough sell in the boardroom. Where the machine has penetrated the business world, it has done so on a tiny scale. Most NeXT setups consist of one or two evaluation models, normally in the publishing department or software development labs. For example, Lotus, which has committed to porting 1-2-3 to the NeXT machine, is said to have the largest installed base of NeXT computers on the US East Coast. Unit sales only totalled in the hundreds last year, according to Businessland.

What's next? Several models, according to sources, including an inexpensive entry-level machine that may either compete with Macintosh or come in as a network version of the firm's existing computer. A speedier, high-end version of the current model is also in the works.

NeXT has added several new sources of support since last month. At the Seybold show, it demonstrated a new scanner introduced by HDS Microcomputer. The Scan-X 600 is an 8-bit scanner with a resolution of 600 dot/in for line art and 300 dot/in for grey-scale images. HDS is positioning the scanner, which costs $US2,220, as an affordable approach to scanning.

First Australian NeXT installation:

By Jeremy Torr

The first two NeXT workstations to arrive in Australia will be used for developing high-level applications in the graphics and digitised audio fields.

Informatel, the company that imported the machines, operates dial-in telephone services ranging from general news lines to stock market information. Eddie Parsons, Informatel's computer systems manager, said the company was able to import the machines, worth $50,000, after petitioning NeXT for two years.

"We had to convince them that we were serious," Parsons said. "Now that we are on the NeXT development program, we will be porting various applications onto the NeXT and developing utilities for release in the US. We may possibly act as an agent for NeXT in Australia but not in the immediate future."

Parsons and co-developer Gerry Clough will also use the NeXT systems to develop sophisticated speech/data programs enabling rapid updates to their information services. "We see the NeXT systems as being incredibly useful as a desktop video machine. We will also be looking at speech processing and the possibility of using parallel processing to speed things up," Clough said.

Clough said Informatel planned to use the machines to develop other specialist software applications for sale to third parties. He said his company was also considering projects in expert applications, audiotext and graphics.

"We shall definitely be considering selling our services and software outside the dial-in services area, possibly in games, advertising agencies or entertainment," he said.

Graphics acceleration chips faster, cheaper
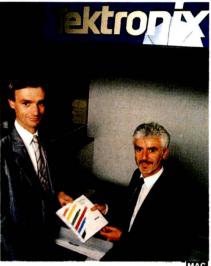
In March, Texas Instruments began shipments of its second-generation graphics processor TI 34020 at 64% less than last year's announced price, and also reduced prices on all speeds of the 34010 processor. The 34020 is rated by TI at three to 20 times faster than the 34010.

TI now expects that 34020-based cards will drop below $US1,000 by year-end. TI also cut the 40, 50, and 60MHz 34010 chip prices from 23% to 50% to encourage new embedded processor applications and lower costs for entry-level graphics adaptors. The TI 34010 chip has been effective in graphics acceleration for the Macintosh. It is used in RasterOps' "RasterBlaster" QuickDraw accelerator (Editorial, May 1989).

A very lucky man

Prizes won in the inaugural Macworld Art Awards were sent to the winners as they came to hand, and accordingly we had no pretty pics to show for it. Tektronix organised their own presentation, however, so here is belated evidence of one very lucky person receiving his ColorQuick ink-jet printer.

Cavan Lenaghan of Inhouse Creative won first prize for the *Printed Finished Product* category, and he plans to use the ColorQuick for proofing colour artwork which the bureau uses in its design of brochures and magazine covers. Mr. Lenaghan expects to cut a significant amount of time out of the proofing process with his new "toy". Congratulations from us, and from David Gradwell, Tektronix' National Marketing Manager, who presented the prize.

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XYBER

Icon happy

By Charles Lecht

"These icons are driving me bananas!" my friend said. "Doesn't anyone use just plain English anymore?"

I was stunned by his remark; these days, everyone using computers seems so icon happy that I thought only Luddites and Unix fans liked to bang away at the keyboard anymore. The former because they long ago revolted against the abandoning of the typewriter so they begrudgingly use a computer as if it were only that, the latter because their operating system is so demanding of user verbosity to try to do anything, no simple icon suffices to tell the system what to do.

To save space, I'll not offer the definition of an icon here; if you are a computer person and you are reading this and you've never heard of an icon, forget it, it's too late to learn what it is now.

"Talk about hieroglyphics," my friend said, "some computer people are so fascinated with today's computer display icons that our alphabet-laden written language may be taken back thousands of years by them." He was grumbling about the growing disposition of companies to produce software whose user language involves choosing icons on a display instead of producing words on a keyboard to get things done. Apparently, he was having trouble using icon-driven systems – getting started with one can be a disorienting experience for older folks not brought up on video games.

A traditionalist and man of letters, excuse the pun, he said he'd much rather type "OPEN FILE" than slide a cursor over to the picture of a file cabinet to do the same. As far as I'm concerned, he was expressing the collective groan of a legion of now-grown schoolchildren who, if they were not bright, were at least able to type, which brought them higher grades from cranky teachers with failing eyesight. Now unable to compete with
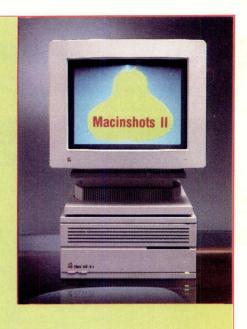
their peers on this basis alone, they are lost in an icon-driven, typewriter-less world.

My friend certainly gave me pause for thought; are icons the business language of the future? Will today's computer people be at the forefront of a drive to abandon yesterday's common business-oriented language – Cobol? I hope so. I'd rather view and select pictures than write Cobol to create a business application.

Open any of the newer information systems applications and what do you find? A slew of icons spread across your display representing a smorgasbord of applications. Why write them anymore! An arrow cursor begs to be moved, usually by manipulation of a mouse, over to an icon to invoke its powers. Some icons even blink like a seductive beacon luring you to choose it over the other more sedate ones.

Of course, there is the problem of deciding what the icons represent. This isn't always easy, but the shape of most gives us an immediate clue. In the better systems, some form of prompting is always around and, in the best of these, just trying the icon renders its meaning clear. Then, there is the problem of deciding what selecting a sequence of icons represents. But, if a person just tries out sequences instead of sitting frozen at the display, that decision will happen. Learning to use an application is far faster than reading poorly written manuals on poorly defined applications that use words, symbols and special characters. Cobol and Unix are prime examples of this.

Calendar, file, file drawer, folder, in-basket, out-basket, telephone, fax, trash, shred, report, library, personnel, memo, send. You name it – all the office objects and operations you've ever dreamed of are now on computer displays in one icon or another. So are those graphics tools and operations like pencil, line, rectangle, ellipse, circle, fill, paint, air spray, cut and paste. Virtually every operation someone does

while at a drawing table has now found its way into icon form.

Sure, not everything a businessperson does is represented by an icon, but this isn't an everything world anyway, so why should we be surprised? Most tasks, however, are.

A picture is worth a thousand words goes the old cliche, and how can we disagree? As far as I see it, the icons used in today's computer systems are a relief in communicating our data processing desires to a machine, in the business world, at least. There's enough meaningless palaver out there already without transferring it to machines, too.

Whatever, it's my bet that icons are with us as the primary user interface for the foreseeable future, so computer people would do well to get accustomed to their usage. And while icons are now for the most part drawn, the time is rapidly approaching that place, location, thing and operations icons will be video pictures. For example, a video of the recipient, a plant location, a file cabinet or a process. And in the not too distant future, these will be replaced by live movies. First appearing in display windows, these will grow ever-larger until they are as large as life itself and projected as holograms in our three-dimensional work space. Then we may come to believe that all we could ever see were icons – the ultimate metaphor for our material world. **MAC**

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POINT 1 *Reduce the average number of days to collect your Debtors' payments*. With Great Plains you will have the power to accurately know and control your Debtors collections. Invoices can be dispatched with the goods, Statements can be sent on a moments notice. At the touch of a few buttons you'll know who to call to remind that their payment is due *next week*, as well as those you'll need to put pressure on when they're overdue. And you'll have the facts when you call, right there on your computer screen. No longer will you have to accept being stretched out 15 to 45 days longer than your stated trading terms.

POINT 2 *Reduce the average number of days inventory is held*. One of the most expensive costs in business is that of holding stock. On one hand if you carry too little you'll lose business to competitors, while on the other hand you're paying high interest rates to finance stock which is above that needed to fill your orders. With the Great Plains Accounting System, inventory control becomes much more "scientific". Businessmen soon learn to use Great Plains to order stock, not too early and not too late but, just in time. They also have instantaneous factual answers to support their hunches and gut feelings right there on the screen.

POINT 3 *Reduce Bad Debt losses*. It is easy to over-extend credit when times get tough and the pressure is on to "make some sales". Well, if you have the courage to establish strong credit controls in your business, Great Plains will give you the power to enforce them. From helping you determine the appropriate credit risk level you should carry for your customers, to implementing automatic shipping freezes for overdue customers. As a result bad debt exposure in general is significantly reduced.

POINT 4 *Increase your sales*. Sales are opportunities and opportunities are made—they just don't happen. A very common occurrence for Great Plains users, is that sales begin to increase. Many things contribute to this including:

- Having the right products in stock,
- Having more cash for promotions,
- Extending more credit to the right customers,
- Quickly responding to orders and enquiries, and
- Management and staff having more time to deal with customers on a personal basis.

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- Collect your receivables sooner, • Reduce your bad debts,
- Reduce your inventory holdings, •Increase your sales.

Now let's quantify that.

This table shows a model business which we will use for comparison. Your business might be ten times bigger or ten times smaller. It doesn't matter because a business of any size can benefit from the savings offered by Great Plains. Later you'll get a chance to actually measure the savings your business may achieve by installing the Great Plains system.

This example uses a business which:
- Invoices $75,000. per month, • Debtors average 60 days,
- Overdraft is 21% per annum, • Bad Debts are 3% of sales, and
- Inventory on-hand value is $180,000.00 (120 days/3 turns).

Using Great Plains and the inherent capabilities of stronger financial controls, it would not be unusual for this business to begin making the following improvements after having successfully installed the system:
- Reduce the average days that Debtors are outstanding by 10.
- Reduce the inventory value by $45,000.00 (30 days or 4 turns).
- Reduce the bad debt write-off to only 2% of sales.
- Increase sales by 5%.

Point	Improvement	Calculations	Savings
DEBTORS	$150,000.[1] x 10 days= $25,000. reduced	$25,000. x .21[2] =	$5,250.00 [3]
STOCK	$45,000. lower holding	$45,000. x .21 =	$9,450.00 [4]
BAD DEBT	$900,000.[5] x 1% =	$9,000. x 1.21 =	$10,890.00 [6]
SALES	$900,000. x 5% = $45,000.	$45,000. x .30[7] =	$13,500.00
PROFIT IMPROVEMENT AFTER 12 MONTHS			**$39,090.00**

1 $150,000 represents 60 days trading.
2 Bank Overdraft rate.
3 Interest on money used to finance Debtors.
4 Interest on money used to finance excess stock.
5 Annual sales revenue (75,000 x 12)
6 Actual working capital saved and the interest to service it.
7 30% being the profit margin on additional sales.

The complete price of a normal three-user Great Plains Accounting System, inclusive of four Macintosh computers, software, printer and professional installation supervision is around $21,500.⁰⁰ or just $581.⁰⁰ per month using Apple*Lease*® finance. So in the example above, **the business would gain an additional $32,118.⁰⁰ profit per year. Now wouldn't that be a worthwhile return on investment?** Single-user systems are available for smaller businesses from $365.⁰⁰ per month. The Great Plains Accounting Series software is also available separately.

If you would like to determine just how much you could save, please ring us for a **FREE COPY** of our "**Here's How Much**" pamphlet. It guides you through a step by step approach to calculate just how much your business is likely to save by installing the Great Plains Accounting System. Personal assistance and demonstrations can be arranged throughout Australia, so please ring today. *Great Plains has the power to help get you through rough times smoothly. Ask for it by name.*

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